FLIGHT

MAGAZINE

APRIL 1956
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DETROIT

SUPER AERO COMMANDER

See page 24

It's not for the birds **but they could use it**

Nothing in nature can even approximate the precise, effortless, all-weather flying afforded by a Lear L-2 autopilot with automatic altitude control and automatic approach coupler.

LEAR

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LC-28

...the *Bellairus*
for the executive who's going places!

Bell Aircraft Corporation's newest helicopter... the Model 47H BELLAIRUS... answers today's need for fast, dependable, ultra-safe transportation.

This is the only vehicle which can by-pass traffic-choked roads and highways on a *door-to-door* basis Busy executives are saving 75 per cent of travel time by using the BELLAIRUS for quick trips from plant to plant, office to plant and office to airport.

The BELLAIRUS can fly anywhere, land anywhere... on a rooftop or a parking lot. It autorotates (safely descends without power) and incorporates all the famous Bell-engineered features which have been operationally proven by two million helicopter flight hours.

Equipped with floats, the BELLAIRUS makes a round trip from an office building to a field location to an off-shore installation without the necessity of changing vehicles.

Let us tell you why... a Bell helicopter can be an important asset to the *executive who's in a hurry to go places.*

FEATURES

- **Economical**
- **Amphibious**
- **Soundproofed cabin**
- **Extra baggage storage**
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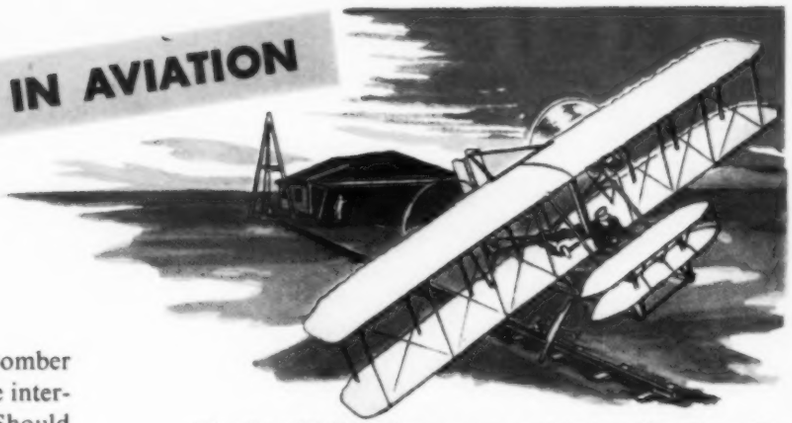
TEXAS DIVISION • P.O. BOX 482 • FT. WORTH, TEXAS

Phillips 66
PRESENTS

MILESTONES IN AVIATION



Smallest Airport

The experiment of an Air Force jet fighter-bomber leaping into the air from a truck reveals some interesting developments in future air combat. Should large forward airfields be knocked out, it will still be possible to give troops close air support or to carry out other fighter-bomber missions.

The fighter is launched from a heavy truck hooked to a caterpillar tractor. The truck is equipped with a launching device used to launch the Martin *Matador* guided missile. The truck can be taken to any spot and when a mission is ordered, the pilot "entrucks," runs his jet engine at full speed, sets off a "booster bottle"—and the plane takes off.

The first Wright planes were assisted on the take-off by a launching device. The plane was attached to a cable. The cable ran through pulleys and was hooked to a heavy weight, suspended in a tripod mast. When the weight was dropped, the plane was shot forward into the air.

It's Performance that Counts!

As a pioneer performer in research and manufacturing to meet aviation needs, Phillips Petroleum Company took an active part in the early, crucial setting up of standards for aviation fuels and lubricants. Indeed, Phillips has led the way in the production of many of the major ingredients of aviation gasolines.

Today, Phillips Petroleum Company has the highest yield of aviation gasoline per barrel of crude oil processed.

In aircraft fuels, it's *performance* that counts. And military and commercial operators know they get *super* performance from Phillips *66* products.

AVIATION DIVISION
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

Phillips 66

AVIATION PRODUCTS

FIRST SUPERCHARGED AERO COMMANDER, the new 230-mph. Model 680, was delivered last month to the Long Manufacturing Co., Tarboro, N. C., by Aero Design & Engineering Co., Oklahoma City. C. R. Grey, chief pilot for Long Manufacturing Co., is shown at left above with R. T. Amis, Jr. (center), Aero Design president, and Gene Hudman of Stonnell & Holladay, Commander distributors, who made the sale.
—(Aero Design Photo.)

AIR Report
Significant Trends and News

BEECH SAFETY AND EFFICIENCY CLINICS for owners of Beechcrafts got under way last month to usher in the 8th year of nationwide free aircraft inspections by factory experts. This year the service is extended to owners of Twin-Bonanzas and Model 18 transports as well as Bonanzas. Over 100 items are checked on each plane at more than 30 points across the country in the program, sponsored jointly by Beech and its distributor organization as the largest undertaking of its kind ever attempted by any aircraft manufacturer. Since this program started in 1949, over 6,000 Beechcrafts have received the free inspection service and 1,368, a record, were inspected last year.

NATIONAL AIRCRAFT SHOW this year will be held at Oklahoma City, financed by the Air Foundation of Cleveland and the Oklahoma City Chamber of Commerce, with Ben Franklin as manager. It was held last year at Philadelphia. The show dates are Sept. 1-3.

NEW AIRCOUPE VERSION OF THE 2-PL. ERCOUPE has been flown by Forney Manufacturing Co., of Ft. Collins, Colorado. It is powered by the Continental C-90 engine and has increased range and metal wing.

BUSINESS PLANE DELIVERIES TOTALLED 576 units with billings of $8,041,000 by 7 companies for February as compared to 509 January deliveries by 6 companies with billings of $6,950,000, according to Joseph T. Geuting, Jr., manager of the Utility Aircraft Council, Aircraft Industries Association. January-February deliveries by manufacturers were reported as follows:

Manufacture	Units	Billings
Aero Design		
560-A	16	$1,193,000
Beech		
Bonanza	84	
Super 18	13	
Twin-Bonanza	21	
Totals	118	$4,233,000
Call Air		
A4	2	$ 11,000
Cessna		
170B	26	
172	282	
180	180	
310	43	
Totals	531	$5,549,000
Mooney		
Mark 20	6	$ 61,000
Piper		
Super Cub	128	
Tri Pacer	209	
Apache	71	
Totals	508	$3,907,000
Taylorcraft		
Model 20	4	$ 37,000
TOTALS	1,085	$14,991,000

PIPER AIRCRAFT's 500TH TWIN-ENGINE APACHE was rolled out of the factory at Lock Haven on March 13. Production of the Apache will reach 2 a day in June.

BEECH AIRCRAFT HAS INCREASED BONANZA PRODUCTION and is now turning out the 4-place at a rate of 2.2 airplanes per working day. Commercial Sales Manager Leddy Greever says he has the largest dollar-volume backlog of Super 18 transports than ever before.

INCREASED PRODUCTION OF PARTS AND COMPONENTS FOR LUSCOMBE SILVAIRES is reported

FLIGHT MAGAZINE

APRIL, 1956 VOL. 45, No. 4

COVER: First Model 680 Super Aero Commander delivered to a customer is pictured on our cover. It is owned by Long Manufacturing Co., Tarboro, N. C., for which C. R. Grey is chief pilot. The 230-mph. 680-Super features engine supercharging for more power at high-elevation airports and cruising.
—(Aero Design Photo by Wayne Entriken.)

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Just Among Ourselves—EDITORIALS: THAT GUY SCHMIDT; THE MEN IN THE TOWERS; ONLY THE BEGINNING . . . 17

Supercharged 680-Super Commander—BY TOM ASHLEY—MORE POWER FOR ALTITUDE PERFORMANCE 24

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More Radio in Less Space—NEW COLLINS EQUIPMENT IS LIGHTER, SMALLER AND BETTER 40

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; E. H. PICKERING, Consultant; P. O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas—Telephone TEnison 6191.

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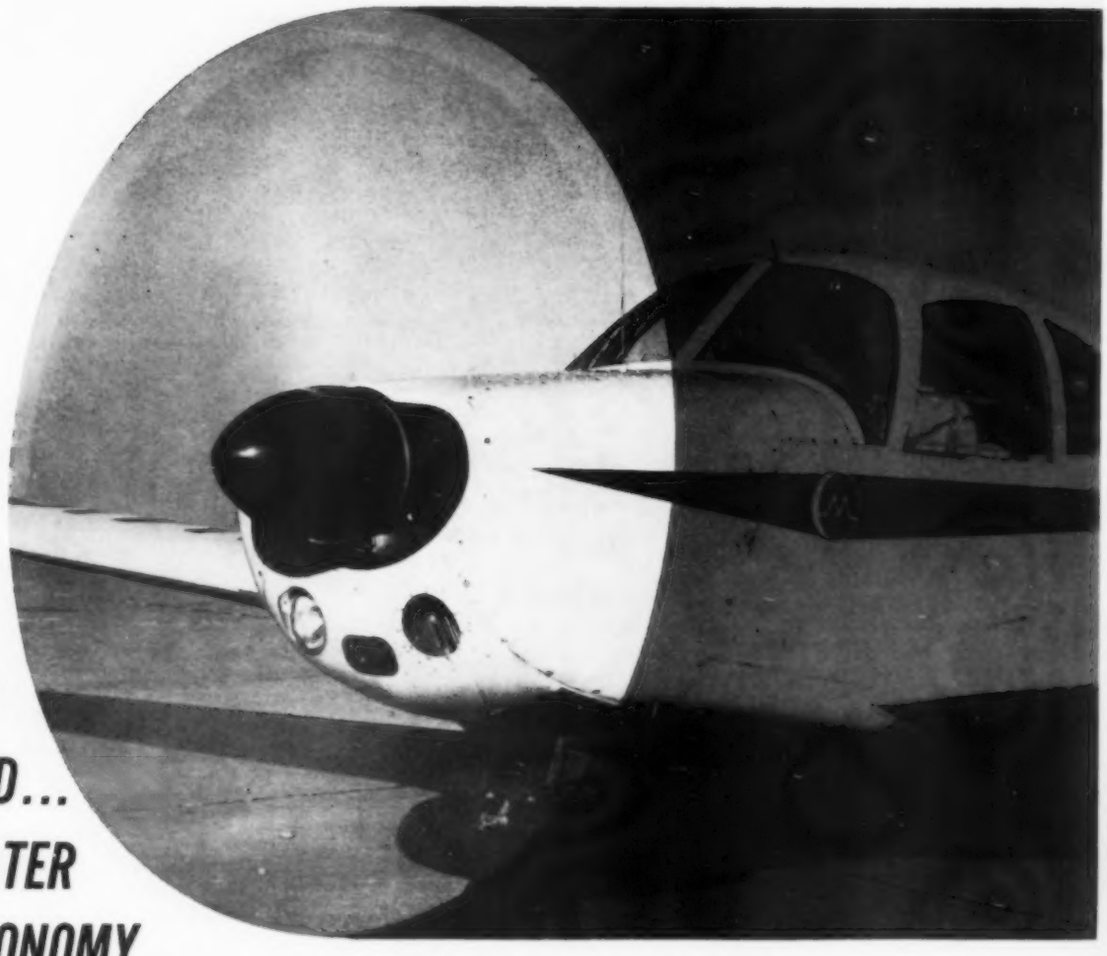
more m.p.h. per h.p. in the Mooney Mark 20.

GREATER SPEED... GREATER ECONOMY



The amazing Mooney Mark 20 cruises at 165 m.p.h. and is powered by the famous 150 h.p. Lycoming engine. This extra-speed means a quick trip for you, regardless of destination — across the state or across the nation.

You get this extra-speed in the Mark 20 because its laminar flow wing, the first ever used on a private airplane in this country, means a lower drag coefficient.

The Mark 20 not only gives you greater speed but greater economy in cost of operation. Based on 500 hours of flying time per year, the Mark 20's average cost is only 6.1 cents per mile, including fuel, maintenance, depreciation, hangar rental and full insurance coverage.

Add up all the distinct advantages of the Mark 20 and you will know why it is your *best* buy in the four-place field. It is priced at $12,500. Get more for your money, get Mooney. See your distributor now!

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announcing . . . for airline and executive aircraft use

THE *Sapphire* 1016

90-360 CHANNEL VHF TRANSMITTER

90-560 CHANNEL VHF RECEIVER

Complete unit occupies ½ ATR rack, weighs 24¾ pounds. Unitized construction permits quick separation of transmitter, receiver and power supply units for easy servicing.

Narco introduced its airline-quality Sapphire line of navigation and communications equipment with the Narco DME...Now comes the Sapphire 1016 VHF communications unit designed to meet the maximum channel requirements for airline and executive aircraft use.

The Sapphire 1016 includes a high-powered transmitter of 90 to 360 channel capacity. It has a crystal-controlled receiver of 90 to 560 channel capacity with precisely defined 50 kc channel separation available throughout the entire range from 108 to 135.95 megacycles.

The Sapphire 1016 meets latest CAA TSO requirements for airline use. While its performance and channel capacity match the finest airline-type equipment available, the 1016 is offered at only a fraction of the cost of comparable equipment. See your Narco dealer or write for full details.

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AMBLER, PENNA.

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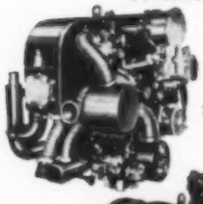
PC-60
4-cyl. 70 hp.

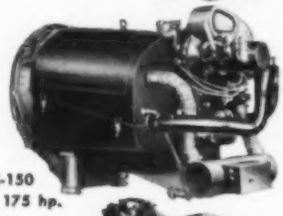
These five all-climate Packettes, the standard package power plant for all types of ground service equipment, provide output from 34 to 220 hp, in combination with that dependability which has made Continental aircraft engines pilots' first choice. Automatically governed by the applied load, for any specific application. These power plants offer wide interchangeability of parts with the basic models from which they are developed. Those with prospective need for compact, dependable power, engineered to operate under equatorial heat or at 65° below zero, are invited to write for information.

THESE ROUND OUT THE PACKETTE LINE

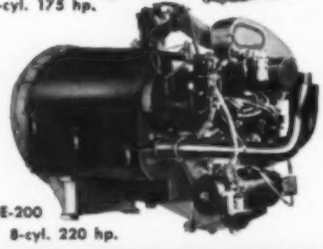


PC-30
2-cyl. 34 hp.

PE-90
4-cyl. 110 hp.



PE-150
6-cyl. 175 hp.



PE-200
8-cyl. 220 hp.

CAREERS FOR ENGINEERS

Continental Motors and its subsidiaries have numerous openings for engineering personnel interested in challenging careers in gas turbine and reciprocating engine development. For information, address Engineering Personnel Department, 12800 Kercheval Avenue, Detroit 15, Michigan.

Continental Motors Corporation

AIRCRAFT ENGINE DIVISION

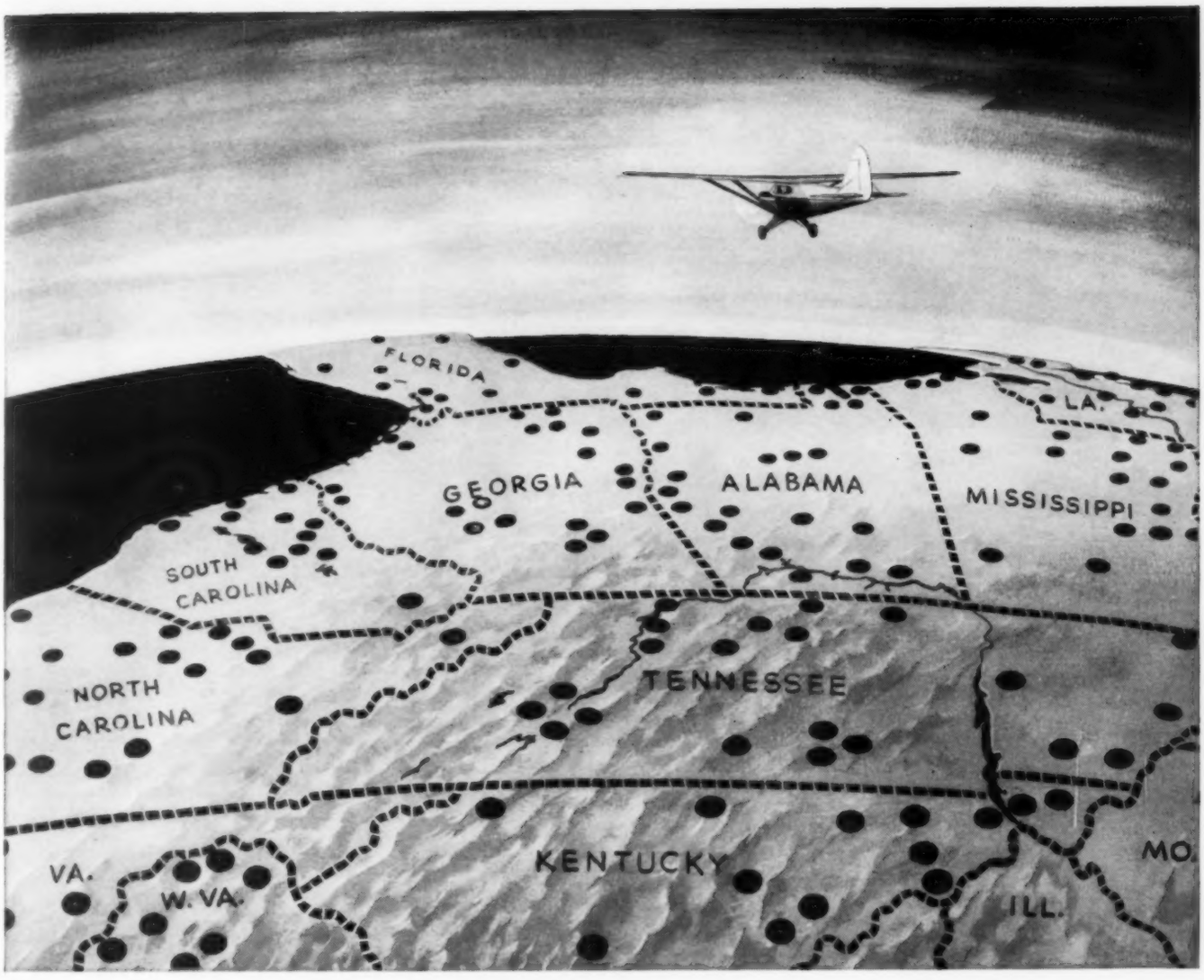
MUSKEGON • MICHIGAN

by Otis Massey, president of Silvaire Uranium and Aircraft Co., Municipal Airport, Ft. Collins, Colorado, which acquired Silvaire engineering, parts, tooling and production rights from Temco Aircraft. A new 70 by 200-ft. plant has been placed in operation and will eventually produce complete 2-place deluxe Silvaires. This firm is the sole source for Luscombe parts and is producing complete wings, tail surfaces, tail cones and individual parts to fill orders from owners of some 5,000 Luscombes.

TWO NEW ORGANIZATIONS FOR PILOTS are the Society of Industrial Pilots, Inc., for pilots who fly for industry, and the Society of Experimental Test Pilots. The industrial pilots group is dedicated to interchange of ideas among members for increased safety and efficient operations and maintenance. It has a "loss of license insurance plan" and information may be obtained from W. D. (Jim) Guthrie, long-time president of Roosevelt Field, at the unit's temporary offices, 222 Seventh St., Garden City, N. Y. The experimental test pilots group, according to its secretary, J. W. Ozier, 1608 E. Avenue Q-6, Palmdale, California, was formed to assist in the advancement of flight safety and in the development of better, safer aircraft. The society is composed of and governed by professional test pilots, and patterns itself closely after the Institute of the Aeronautical Sciences.

MILITARY AND AIRLINE ORDERS FOR BELL'S NEW 3-TURBINE TRANSPORT HELICOPTER, the Model D216, are being sought,

VERTICAL TAKE-OFF AND LANDING for fixed-wing aircraft is being explored with boundary layer control studies by Cessna Aircraft Company under military research contracts. Design studies for possible Army use include a utility command aircraft and a high-performance observation-reconnaissance airplane. Alex Petroff, director of research, is pictured at a Cessna blackboard discussing VTO design problems with Jack Fisher and Bob Wattson. —(Cessna Photo.)



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Flying down south, up north or to points in between, you'll always find an Esso Aviation Dealer ready with prompt service, experienced operators and famous Esso Aviation Products.

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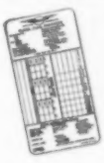
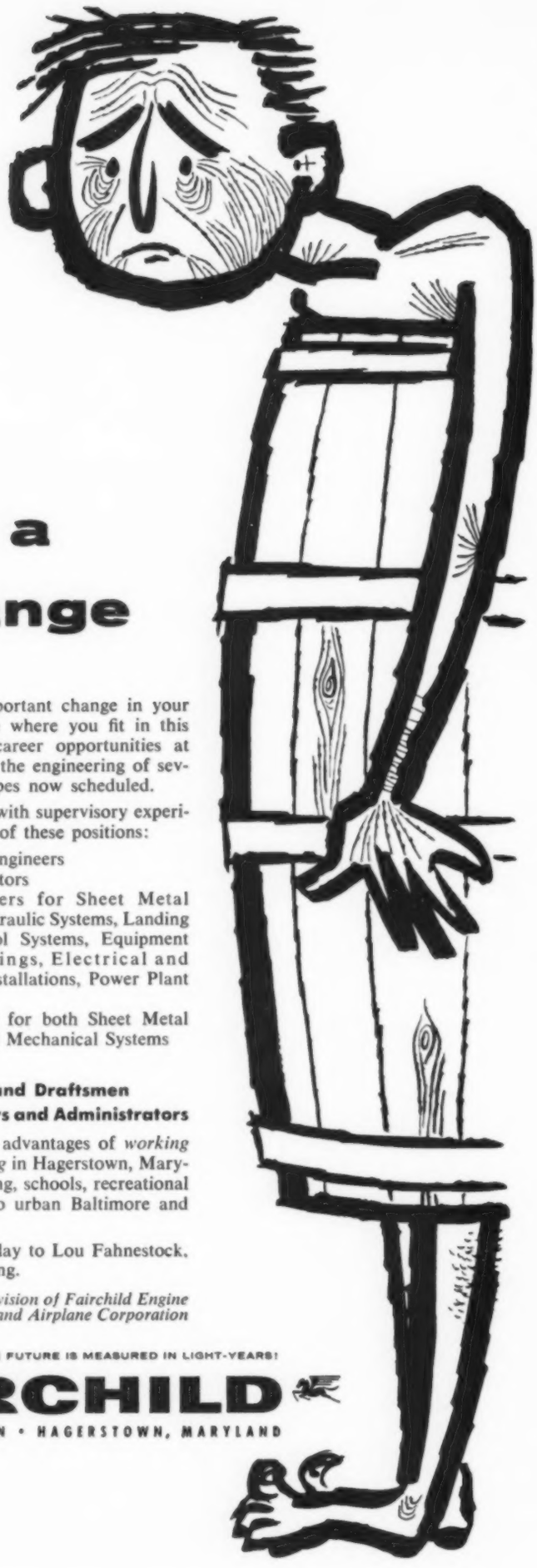


FREE TO PILOTS! *See your nearest Esso Aviation Dealer for a free Flight Sequence Card, containing everything from VHF frequencies for private pilots to traffic control light signals.*



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Bring about that important change in your working climate. See where you fit in this list of outstanding career opportunities at Fairchild to assist in the engineering of several airplane prototypes now scheduled.

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AIRCRAFT DIVISION • HAGERSTOWN, MARYLAND

with New York Airways joining Bell in urging military support of a production program which would enable helicopter airlines and other carriers to obtain the 25-passenger tandem-rotor transport sooner than if it were solely commercial. Any two of its three turbines would be sufficient for 6,000 to 8,000-lb. payloads. Bell has been demonstrating to Army officials a stripped-down version of the tandem-rotor HSL anti-submarine transport, which the turbine-powered craft resembles.

VERTOL AIRCRAFT CORPORATION is the new name for Piasecki Helicopter Corp., of which Don R Berlin is chairman.

A PASSENGER-CARGO version of the 225-hp. Fletcher FU-24 Utility has been announced, with provisions for seating 4 persons behind the pilot. For cargo, it will have a maximum payload of 1,500 lbs.

SOUTHWEST JET AGE CONFERENCE will be held May 2-3 at the Mayo Hotel in Tulsa with Harold C. Stuart and Russell F. Hunt as co-chairmen and sponsored by the Air Force Association and the Tulsa Chamber of Commerce, with aviation users and industry people of Oklahoma, Texas, Arkansas, Kansas, Mis-

Airmen's Calendar

April 15-19—9th Annual Airport Operators Council Conference and Membership Meeting, Hotel Warwick, Philadelphia.

April 18—Beech Aircraft Regional Sales Conference, Melrose Hotel, Dallas.

April 16-18—Aero Medical Association Annual Meeting, Drake Hotel, Chicago.

April 21-28—Carolina Aero Club "Operation Full Moon" Lightplane Tour to Florida Keys and Cuba. Information from John Coffey, Box 331, Raleigh, N. C.

April 22-26—29th Annual Convention, American Association of Airport Executives, Hotel Carter, Cleveland.

May 2-3—Southwestern Jet Age Conference, Sponsored by Tulsa Chamber of Commerce and Air Force Association, Tulsa, Okla.

May 2-3—12th Annual American Helicopter Society Forum, Sheraton-Park Hotel, Washington.

May 6-9—2nd Annual Symposium on Flight Test Instrumentation, Sponsored by Instrument Society of America with Bell Aircraft, Temco Aircraft and Convair, Ft. Worth, Tex.

May 11-13—Texas Private Fliers Association Annual Convention, Statler Hilton Hotel, Dallas.

May 13-23—7th Annual All-Woman International Air Race, Hamilton, Ontario, to Havana, Cuba. Entries: Irma Price, Entry Chief, 242 S.W. 8th St., Miami, Fla.

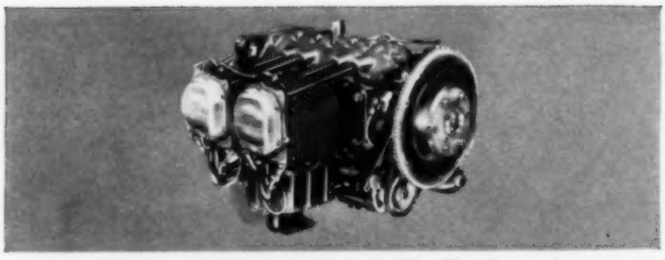
May 27-June 3—Aviation Writers Association Annual Convention, Mark Hopkins Hotel, San Francisco.

June 2—7th Annual Reading Air Service Maintenance and Operations Meeting, Reading, Pa.

June 8-10—Missouri Air Tour.

here's WHY you'll BUY the TRI-PACER

MORE PERFORMANCE. The great new 1956 Piper Tri-Pacer has the best all-around performance of any four-place, tricycle geared business craft in the same price class. High cruising speed, better climb, longer range, better high altitude performance, are all yours with the Tri-Pacer.



MORE POWER, MORE DEPENDABLE. The Tri-Pacer has more power than any comparable plane...a full 150 horsepower from its rugged Lycoming engine, with an unsurpassed reputation for dependability and long operating life. Smooth four-cylinder design accounts for lowest operating costs, too.

MOST FEATURES FOR HANDLING EASE. Only the Tri-Pacer combines all these features for flight simplification and safety:—simplified, inter-connected controls, steerable nose wheel, single hand brake, tricycle landing gear, *plus* famed Piper inherent stability and stall resistance.

IDEAL FOR BAGGAGE OR CARGO. Big baggage compartment can be easily loaded through large outside door, a Tri-Pacer exclusive in its class. Rear seat can be quickly removed to convert to cargo carrier with 600-pound capacity. Large rear door eases loading of bulky items.

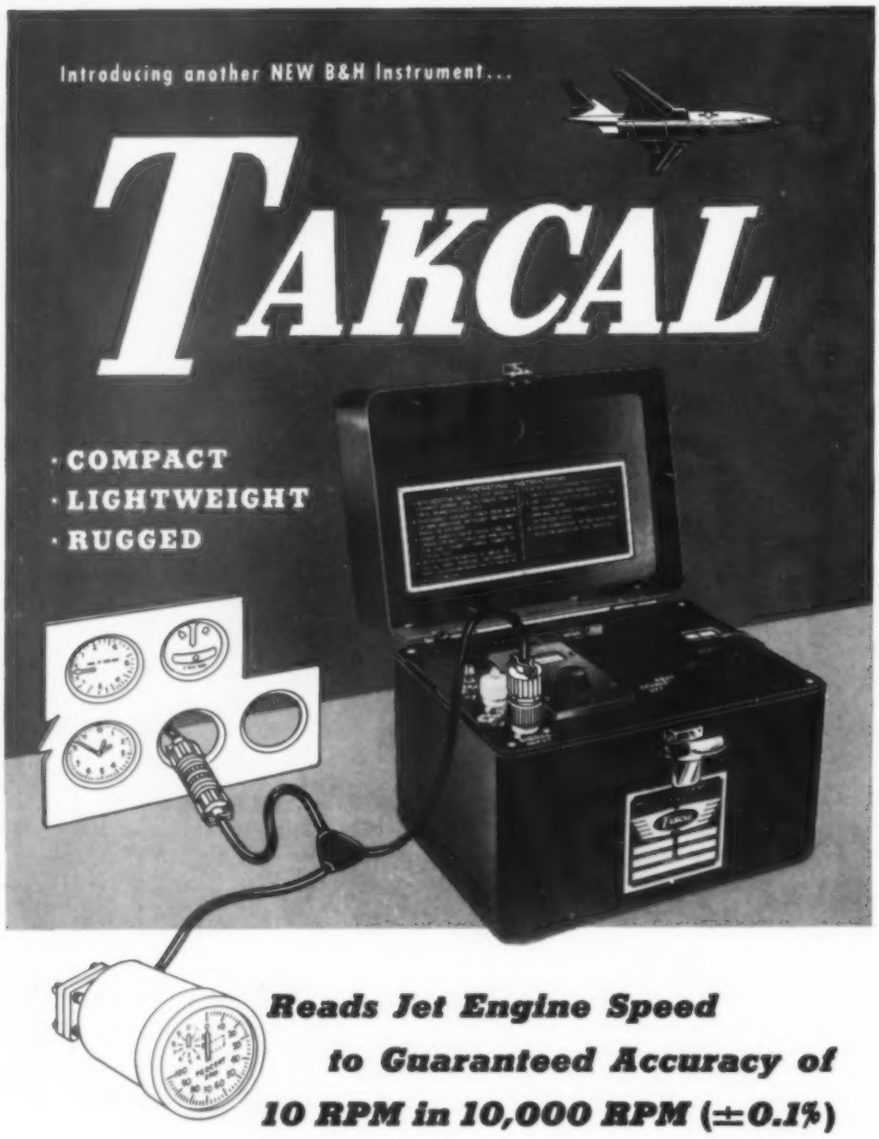
SMART NEW LARGER, QUIETER CABIN. The beautifully styled Tri-Pacer cabin has been made larger, quieter, more comfortable in every way. Front seats are individually adjustable. Separate front and rear doors are exclusive Tri-Pacer feature. New panel provides better placement of instruments and radio.

AND LOWEST COST!

The Tri-Pacer sells for only $7295...$1455 less than any other production four-place plane in its class. For little more than the bare price of other aircraft, you can get the Super Custom Tri-Pacer – completely equipped for cross country travel including full gyro panel, lights, VHF and LF radio, Omni, homing loop and many other features. Total price completely equipped only $8895.

See your Piper dealer or write for new full-color Tri-Pacer brochure and details on new Piper "Learn As You Travel" program. Dept. F-4.

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNSYLVANIA

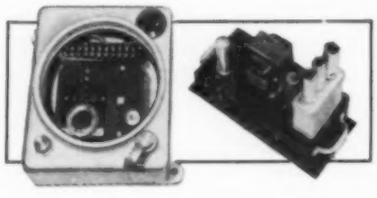


Reads Jet Engine Speed to Guaranteed Accuracy of 10 RPM in 10,000 RPM (±0.1%)

The new B&H TACKAL incorporates a refinement of the frequency meter principle. It operates in the low (0 to 1000 cps) range, reading the frequency of the tachometer generator on a scale calibrated in percent RPM corresponding to the engine's RPM. In addition the TAKCAL checks the tach system. The TAKCAL circuit and tachometer are parallel so that readings can be made simultaneously to determine the accuracy (or inaccuracy) of the aircraft's tach system. The TAKCAL operates during the engine run to properly set up engine controls for maximum economy and safety.

Originally developed as a component part of the J-Model JETCAL ANALYZER, the TAKCAL is now available as a separate unit for use with all earlier models of the JETCAL TESTER.

The TAKCAL operates accurately in all ambient temperatures from −40°F. to 140°F. Low in cost for an instrument of such extreme accuracy, it is adaptable to application in many other fields.



Explosion-proof TAKCAL for special applications. Measures 200 to 7500 RPM, direct reading, with ±0.1% accuracy.

For full information write or wire . . .

TAKCAL

B & H INSTRUMENT Co., INC.

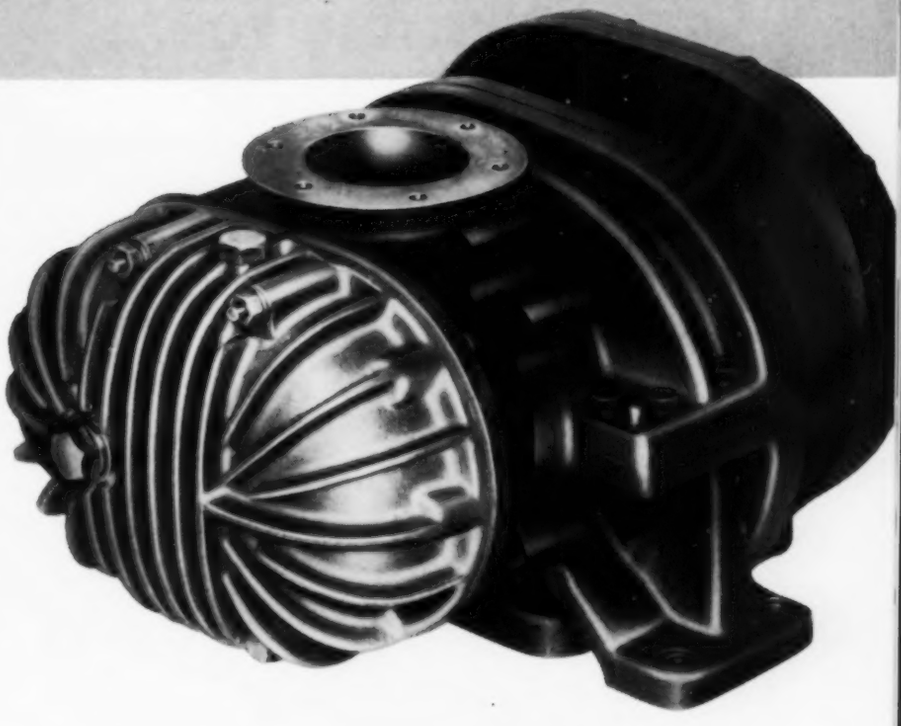
3479 West Vickery Blvd., Fort Worth 7, Texas

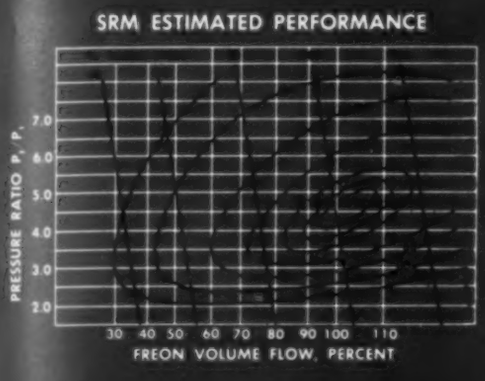
souri, Louisiana, New Mexico and Colorado urged to attend. This will amount to a virtual "repeat performance" of the recent jet age conference in Washington where authorities revealed many of the pressing airport, noise suppression, safety and air traffic problems intensified by jet developments including future airline operations. Top authorities will be speakers at Tulsa — General Earle Partridge, continental air defense command chief; CAA Administrator Charles J. Lowen, Jr.; Robert Aldrich, Airport Operators Council president; William Littlewood, NACA sub-committee on aircraft noise chairman; Dr. H. O. Parrack, noise and vibration authority of the Air Force; Edward P. Curtis, the newly appointed presidential assistant for aviation facilities planning; Dr. George E. Valley, Jr., Massachusetts Institute of Technology; Jerome Lederer, Flight Safety Foundation director; Col. Francis Taylor, air navigation development board chairman; David D. Thomas CAA deputy director for airways; Henry W. Boggess, National Business Aircraft Association president, and Clarence N. Sayen, Air Lines Pilots Association president.

McDONNELL AIRCRAFT AT ST. LOUIS has received an additional contract of $22.5 million for development of the supersonic F4H-1 Navy all-weather attack fighter. The original contract received in October, 1954, was for $38.7 million. It is currently producing two versions of the F3H-2N Demon fighter for the Navy, for which a new $22 million order was received last month, and three versions of the F-101 Voodoo for the Air Force. McDonnell's backlog now totals a record $622 million and includes, in addition to fighter aircraft contracts for guided missiles and diversified experimental and devel-

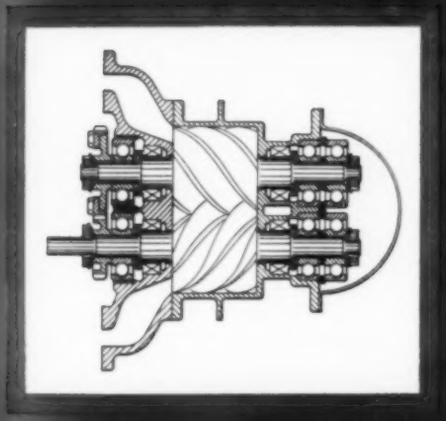
SUPERSONIC CHANCE VOUGHT F8U-1 Crusader looks like this from the front with canopy open. This Navy day fighter's probe carries test-flight pitch and yaw measuring devices. Note retractable step for pilot above nose wheel on right. —(Chance Vought Photo.)

FOR FREON REFRIGERATION

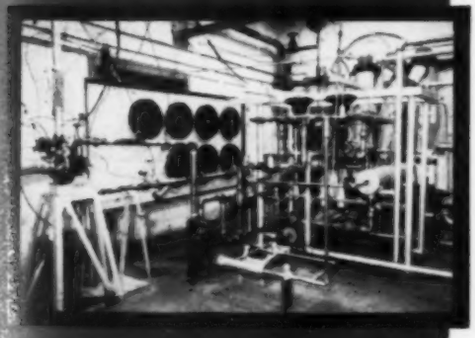




Performance Map shows Compressor's Efficiency



Cutaway View Showing Compression Principle



Installation in Stratos Freon Refrigeration Test Cell

Weight.....7 lbs.
Nom. 10-ton Compressor

NOW, A HIGH SPEED POSITIVE DISPLACEMENT COMPRESSOR

Stratos' positive displacement compressor is ideally suited for pumping gases against high pressure ratio heads at relatively low flow – volumes such as are involved in freon refrigeration systems for transport aircraft. Compression ratio is built in, avoiding backflow compression, and is independent of speed. The compressor is surge free and simple in construction, requiring no complex valving or control systems. It can operate at high speed – up to 40,000 rpm – keeping unit and drive, size and weight down. Drive can be hermetically sealed electric, turbine, hydraulic or direct from an engine.

Two helical lobe rotors trap the entering gas, compress it in a confined area and deliver it to an exit port at the design pressure. The rotors are of a patented design, with a unique form already proved in a variety of industrial and aircraft applications.

Stratos currently is developing freon refrigeration systems, incorporating this compressor, for use in large transport aircraft. Other applications – such as pressurizing of high altitude aircraft – are being developed.

For further information on this interesting development in compressors write to:

STRATOS

A DIVISION OF FAIRCHILD ENGINE & AIRPLANE CORPORATION

Main Plant: Bay Shore, L. I., N. Y. • Western Branch: 1800 Rosecrans Ave., Manhattan Beach, Calif. • West Coast Office: 1355 Westwood Blvd., Los Angeles, Calif.

...WHERE THE FUTURE IS MEASURED IN LIGHT-YEARS!

You wouldn't know

UNLESS WE TOLD YOU...

we send our men to the Beechcraft plant periodically

For The Newest Techniques!

Advanced training never ceases for Aircraftsmen's technicians. Regular periods of schooling at the Beechcraft plant, for example, assures superior service for your Bonanza or Twin. Our men come back with both new and reviewed Beech mechanical techniques!

You, as our customer, are assured a factory-trained mechanic, or supervision of a factory-trained mechanic, at all times.

Complete Beechcraft Bonanza ACCESSORIES are available at Aircraftsmen Inc. . . . map and thermos cases, curtains, visors, breather oil separators, aileron trim controls, and ten-gallon auxiliary fuel tanks . . . installed by FACTORY-TRAINED, experienced technicians.

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opment programs, among which are helicopters and convertiplanes.

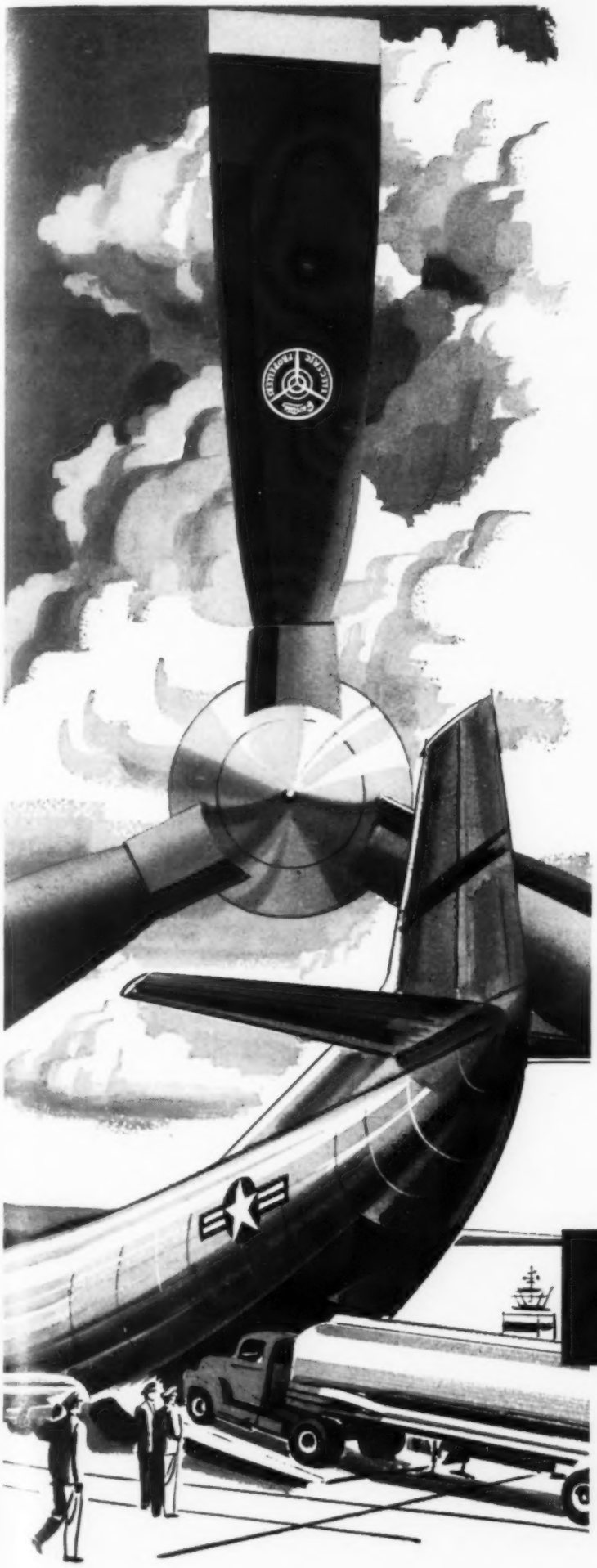
FIRST LIQUID-FUEL ROCKET VEHICLE designed to be controlled without the use of fins is Martin Aircraft's three-stage Navy Vanguard which resembles a giant rifle cartridge. It was designed and is being built by Martin as the launching vehicle for the first U. S. man-made satellite. The Vanguard's third stage will impart to the satellite a speed of 18,000 mph. This third stage will orbit with the satellite, tagging along behind it until atmospheric drag eventually causes both the rocket shell and the satellite to descend into the lower atmosphere and destruction. Orbital altitude will be 200 to 400 miles. General Electric will build the first stage rocket motor and Aerojet-General the second stage motor. The third stage will use a solid propellant.

SIKORSKY S-58 HELICOPTERS carrying 12 passengers each, will replace 6-passenger S-55's this summer on Sabena Belgian Airlines' scheduled helicopter services radiating from Brussels.

GENERAL AVIATION AND BUSINESS FLYING statistics are detailed in a new edition of the Department of Commerce's booklet, "The Airplane at Work for Business and Industry," devoted chiefly to an analysis of 1954 activities and available now at $1 per copy. Previewing the booklet, CAA says all general aviation flying, including business flying, totalled 9.5 million hours in 1955, almost 3 times the number of hours flown by the airlines and reflecting a 6 per cent increase over the 1954 record for general aviation. Business flying alone accounted for half of all general aviation miles for 1954 and

(Continued on page 54)

STEPPED-UP BEECHCRAFT LEASING was arranged recently by Beech Commercial Sales Manager Leddy Greever (left) and Richard F. Jones, president of American Leasing Corp., Hartford, Conn. Customers desiring to lease Beechcrafts, instead of buying them, obtain their aircraft from ALC, which purchases the aircraft from Beech distributors.
—(Beech Photo.)



CURTISS-WRIGHT
TURBOLECTRIC PROPELLERS

will insure high performance and precision control for the

DOUGLAS C-133

–giant global turboprop transport

The Air Force's newest and biggest global carrier is the Douglas C-133 turboprop cargo transport. Over 148 feet long, with wing spread wider than a football field, this high speed, long range aircraft which will lift twice the payload of any military transport now in service, is expected to set new standards of performance as a global carrier of air cargo.

Powered by four turboprop engines, the C-133 is equipped with 3-bladed Curtiss-Wright Turbolectric Propellers – the most efficient means of converting engine power into useful thrust. These propellers, with one-piece extruded, hollow steel blades, provide high performance and a new flexibility of control through full synchronization . . . full feathering, either manual or automatic . . . fast reversing . . . single-lever power control.

Turbolectrics are specified for the major U.S. turboprop engines, which include the T-38, T-49, T-34, T-56 and T-40

PROPELLER DIVISION
CURTISS-WRIGHT
CORPORATION • CALDWELL, N. J.

YOUNG MEN! JOIN THE U. S. AIR FORCE

Investigate Career Opportunities At Your Nearest Recruiting Office

a letter from Daddy

TO: JOAN REED

Dear Joanie:

Congratulations from the proudest papa on earth! So at last you're on the stage, treading the boards in the paths of other Great Ladies of the Legitimate Theater, like Cornell, Hayes, and Barrymore! Remember now, honey, on opening night just forget yourself completely, smooth out your costume, and let the character you portray come shining through.

Since you're going to be famous, you may not be interested in news about your daddy and his business flyin' machine—like, for instance, Southwest Airmotive's new pocket-size "program" detailing flat labor rates for the overhaul of engines, accessories, and instruments. As a kind of bonus for us old geezers, it even includes photos of SAC's beautiful ad models—which reminds me, I'm glad you're not the cheesecake type, even if you are 22, 5'6", 118 lbs., blue-eyed and blonde. For nearly a quarter-century, Southwest has pioneered many great things—including flat labor rates—and this little SAC booklet is a useful reminder that the company remains No. 1 in top-quality craftsmanship at money-saving prices. They'll send a copy to any pilot or owner on request, and I'll have 'em mail one to you just for fun.

Good luck—and remember grandpa and grandma were in the theater, too. Only one Black Sheep—your Uncle Hugo who was in burlesque, but we don't mention him!

Love,

Daddy

SOUTHWEST AIRMOTIVE CO. • LOVE FIELD • DALLAS, TEXAS

Just among ourselves

That Guy, Schmidt

AT Cleveland, Ohio, on April 22, the American Association of Airport Executives will convene its 29th annual business meeting and convention. Advance information points to the fact that it will be the most successful meeting in the Association's history.

While it is impossible to give all credit for the success of any one organization to any one man, we believe the broad membership of the AA of AE will agree with us that the major credit for its more recent progress, virility and energy is due one person — R. W. F. (Bob) Schmidt, of the Tucson Airport Authority, who has served the Association and the industry so well as executive secretary of the group.

No aviation trade organization has been blessed with a spark plug containing more spark than that provided by Bob Schmidt.

Aviation groups that lapse into mediocrity or die on the vine, whether they be local or national, come to evil days because they either lack a spark plug or else fail to service the members and the best interests of the group they intend to serve. Too often the sole concern is to create a job for someone or try to coast along from year to year with non-paid volunteer officials.

In the case of the American Association of Airport Executives, next to consistent service to the membership on all matters affecting them, the greatest progress has been the establishment of airport management as a respected profession. It has become, under AA of AE aegis, a lifetime technical and business pursuit as distinguished from just another political job handed out and controlled by the city hall politicians with no regard for professional training or experience.

This is not to say the battle is completely won. But airport management is well on the way to professional rather than political identity. Officials like Bob Schmidt, who have devoted most of a lifetime to the profession, are responsible for this healthy trend so vital to aviation progress; for unless our airports are managed by competent, experienced and technically trained professionals aviation growth and expansion through constantly increasing public patronage is impossible.

Fortunately the aviation industry is beginning to appreciate this obvious fact and in turn appreciate the airport managers throughout the length and breadth of the land who are on the job, day and night, fighting aviation's battles from the difficult middle, struggling with the problems of unanticipated traffic and public acceptance on one hand while trying desperately on the other to provide the facilities from exhausted budgets and tight-wad city administrations from whom they draw their livelihood.

Surely it must be a happy and altogether satisfying feeling Bob Schmidt has on occasion of his retirement for a rest from long service to his profession through his professional organization, looking back over the years and recognizing his unselfish contributions to aviation. We've known from close association he has never failed to work on any problem to come his way, to participate in any matter, large or small, where he might be of some service, especially in cases of smaller communities without any money to hire experts but in dire need of professional advice and counsel.

Schmidt isn't known for reticence in expressing his opinions. He goes in swinging and lets the chips fall where they may, true to the old tradition of direct action when it becomes necessary to jar things off dead center with hell-raising, cantankerous and argumentative stimuli at which he's a past master. Equivocation is not in his make-up and accounts for the trenchant and highly informative AA of AE bulletins he's been editing during his term as executive secretary. These colorful attributes have helped give AA of AE the virility and dynamic qualities which distinguish it from a whole list of juiceless and indecisive outfits that clutter up the aviation landscape. Schmidt is an iconoclast of the old school.

Like those who work with him toward the betterment of the airport management profession we sincerely hope his self-imposed and justly earned period of rest from AA of AE responsibilities will be of short duration.

The Men in the Towers

SOME years ago, when Delos W. Rentzel became administrator of civil aeronautics, these columns urged an immediate up-grading of air traffic controllers both in position and in pay. Later we had the opportunity to bring the new administrator face to face with the situation out in the field where controllers were beginning to leave CAA service, worn out and disgusted with such a terrific amount of responsibility at such unfair salaries.

Action was taken by the administrator and pay deficiencies eventually were corrected. It was obvious then and now that you can't make a competent controller overnight and that the whole domestic system was in danger of breaking down for lack of adequately trained personnel.

Similar conditions are developing again. The Air Force, with easier purse strings, is pirating the civilian towers. The new airline employment spree also is getting many of the controllers, especially the pilots.

The situation, as one CAA official recently put it, is now past the critical stage. They do not have enough funds in the 1957 budget to replace those who have resigned. This condition in the face of mounting air traffic, which calls for more rather than less controllers, has forced the pirating of CAA communication stations and even recruitment of green horns from the outside.

Establishment of a training program is desperately needed. If such a program were put into immediate effect at least the crisis would not develop into chaos. But there is very little

(Continued on page 48)

IN PRODUCTION

—the new work horse of the Air Force

Lockheed C-130 Hercules to provide jet age transport speed with Allison Turbo-Prop Engines and Aeroproducts Propellers

Now in production at Government Aircraft Plant No. 6, Marietta, Georgia, the Air Force's first turbo-prop transport before long will begin active service with the USAF Tactical Air Command.

Powered with four Allison T56 engines and Aeroproducts Propellers, the new Lockheed Hercules will add speed and load-carrying ability to the logistics support of our jet-powered combat forces.

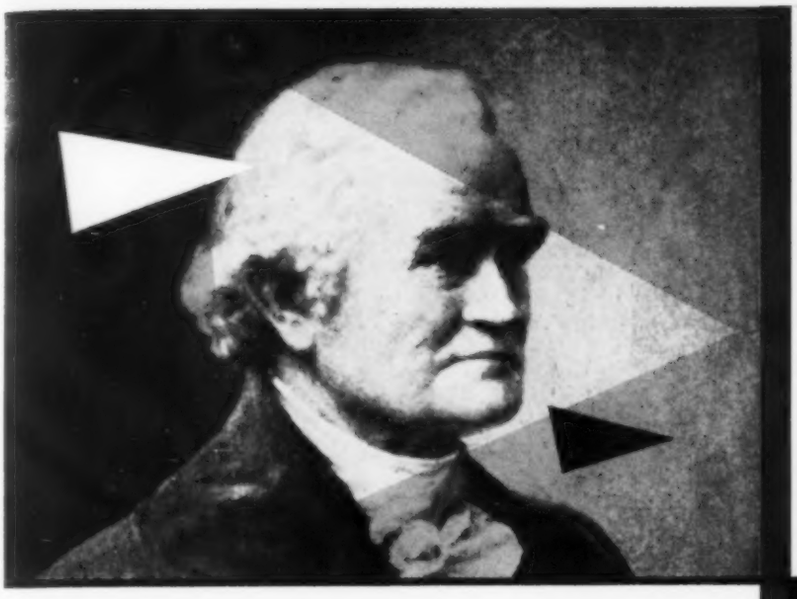
Now undergoing the rigid test of cold weather operation in the climatic test hangar at Eglin AFB—home of the Air Proving Ground Command—the C-130 will be proved fit and ready when it reports for duty some time this year.

Already the matched team of Allison engines and Aeroproducts Propellers stands as the most thoroughly proved turbo-prop power package in America. In military – as well as in commercial service – it is ready to take its place in the jet age of air transportation.

Backed by more than 8 million hours of turbine engine flight time—experience where it counts most—in the air!

ALLISON
TURBO-PROP POWER
ALLISON DIVISION OF GENERAL MOTORS · Indianapolis, Indiana

AMERICAN BUILT FOR THE JET ERA IN AIR TRAVEL



HOW DOES WEBSTER DEFINE RELIABILITY?

"Reliability . . . suitable or fit to be relied on; trustworthy," according to Webster.

In keeping with Webster's definition of Reliability, Dallas Airmotive provides the type of engine overhaul that assures engine performance that is reliable and trustworthy. Dallas Airmotive is the home of reliable engines. Employing the finest technicians, Dallas Airmotive gives its technicians the finest and most complete equipment available with which to work. Dallas Airmotive backs up its personnel in doing each job the right way so that the customer has a safe, reliable engine for hundreds of flying hours to come.

Member National Business Aircraft Association

DALLAS

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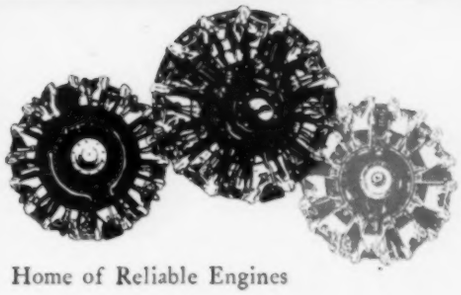


Home of Reliable Engines

Over one-fourth of the people in the U.S. live within range of atomic missiles that could be launched in a sneak attack by

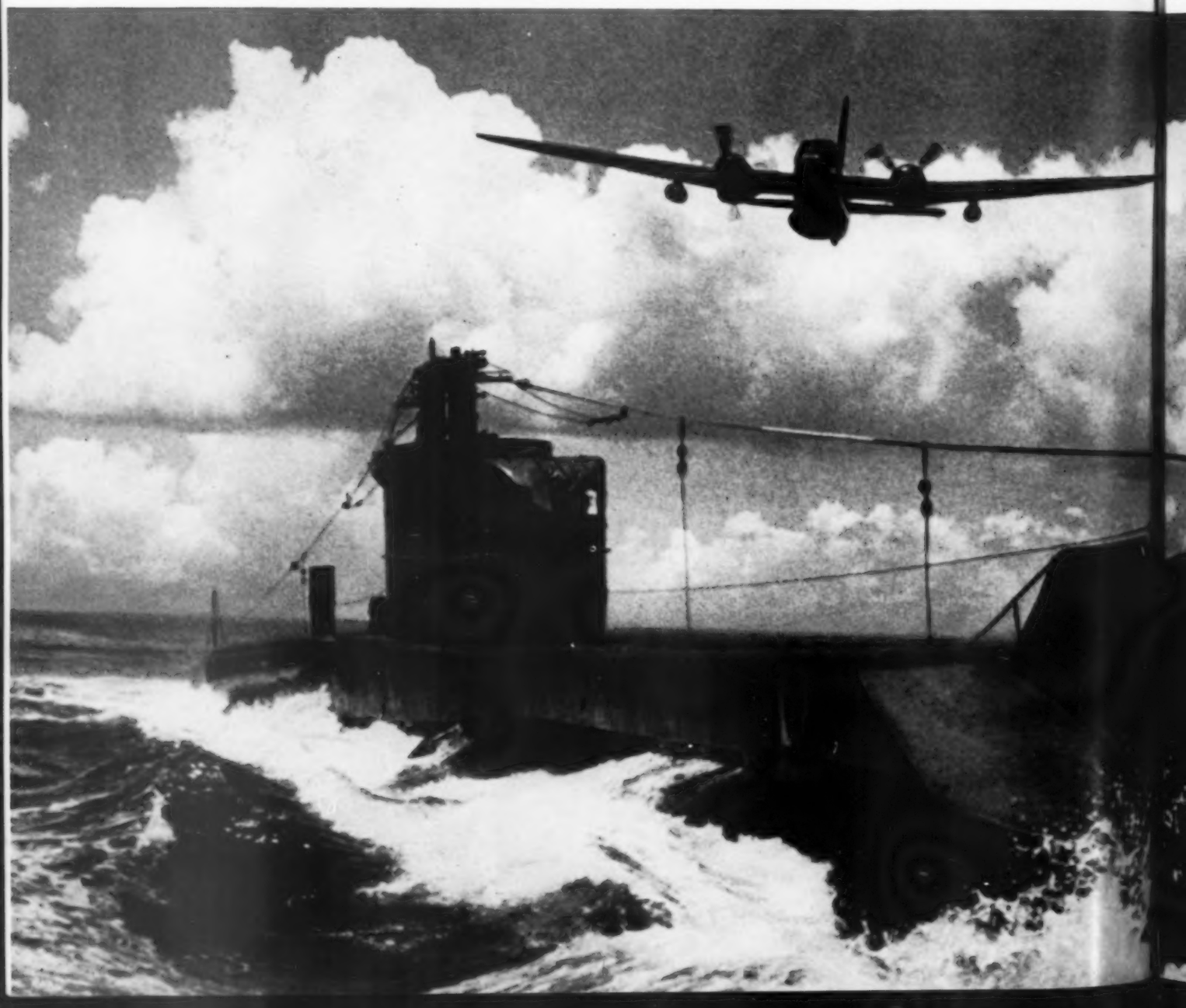
Modern submarines, able to make long voyages while completely submerged, and to launch nuclear missiles in a sneak attack, are among the most sinister weapons of this atomic age.

To safeguard our nearly twelve thousand miles of coastline against sub invaders, the U.S. Navy for ten years has patrolled immense areas of the ocean, in fair weather and foul, in Lockheed P2V *Neptunes*. Special submarine detection gear enables the P2V, despite darkness or fog, to pinpoint even submerged subs. And pro-

ENEMY SUBS!

A CRUCIAL U.S. DEFENSE PROBLEM

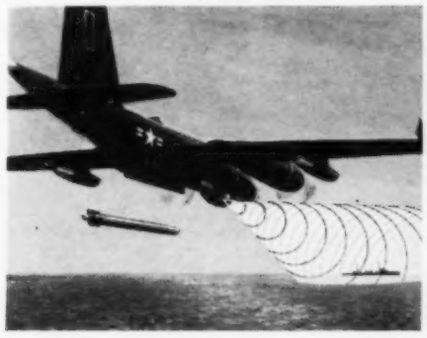
Official R.A.A.F. photo (below) shows war games "attack" on British sub by Royal Australian Air Force *Neptune*. (P2V's are in military service for the following friendly countries: Australia, Canada, Great Britain, France, Japan and the Netherlands.)



gressive modifications of the P2V have kept it militarily up to date at lowest cost to the Navy. Pound for pound, and dollar for dollar, the P2V *Neptune* is the most formidable patrol aircraft bearing the insignia of the U.S. Navy.

Recently the Navy awarded Lockheed its *24th* contract for P2V *Neptunes*—a tribute to Lockheed's leadership in weapons system management, the development and application of electronics, and the design and production of long-range patrol aircraft.

These drawings illustrate the multiple-mission capabilities of the P2V *Neptune:* **1** Low-flying P2V's electronic gear spots submerged sub because its presence distorts the earth's magnetic field. **2** Depth-bombing a submerged sub, **3** torpedoing a surface ship or laying mines to disrupt enemy shipping are jobs the P2V can do equally well. **4** Spotting hurricanes and reporting their velocity and direction are routine but important P2V missions which save human lives and vast sums in property damage.



Lockheed Missile Research Laboratories to Be Built in Stanford's Industrial Park

A series of research laboratories will be constructed by Lockheed's Missile Systems Division on a 22-acre site adjacent to Stanford University, Palo Alto, California. On a nearby site of 275 acres, at Sunnyvale, Lockheed will build extensive new engineering, manufacturing and administration facilities. Lockheed's 3,000 scientists, engineers and technicians now developing guided missiles and unmanned aircraft at Van Nuys will transfer to Palo Alto and Sunnyvale as rapidly as construction permits.

The proximity of both new sites to Stanford will make the university's outstanding academic resources available to Lockheed research teams. And the new laboratory facilities to be built by Lockheed will provide Stanford scientists with technological tools and consulting opportunities hitherto unavailable.

ATTENTION, STUDENTS WHO DESIRE MASTER OF SCIENCE DEGREES: Lockheed's Advanced Study Program *helps students achieve MS degrees in Mathematics, Electrical and Mechanical Engineering, Aeronautics and other physical sciences. Write:* LOCKHEED MISSILE SYSTEMS DIVISION, *Van Nuys, Calif.* *(Below: aerial photo of Stanford campus.)*

LOOK TO LOCKHEED FOR JET LEADERSHIP, TOO

LOCKHEED

AIRCRAFT CORPORATION

California Division, Burbank, Calif.
Georgia Division, Marietta, Ga.
Missile Systems Division, Van Nuys, Calif.
Lockheed Air Terminal, Burbank, Calif.
Lockheed Aircraft Service, Burbank, Calif.

New Gulf Aircraft Engine Oil reduces sludge and oil inlet screen deposits . . .

Gives maximum operating efficiency and increased economy through cleaner engines and less frequent overhauls!

You can count on it—new Gulf Aircraft Engine Oil gives you better service, *5 ways:*

1. Improves internal engine cleanliness.
2. Minimizes sludge and oil inlet screen deposits.
3. Lowers rate of parts replacement due to wear.
4. Has low pour-point for ease of starting even in coldest weather.
5. Increases periods between engine overhauls.

This new straight mineral oil is designed to give outstanding performance in all types of aircraft engines in commercial service.

You can count on getting trouble-free service from Gulf's new Aircraft Engine Oil. It has been extensively flight-service tested in all types of aircraft engines by private operators, executive fleets and airlines.

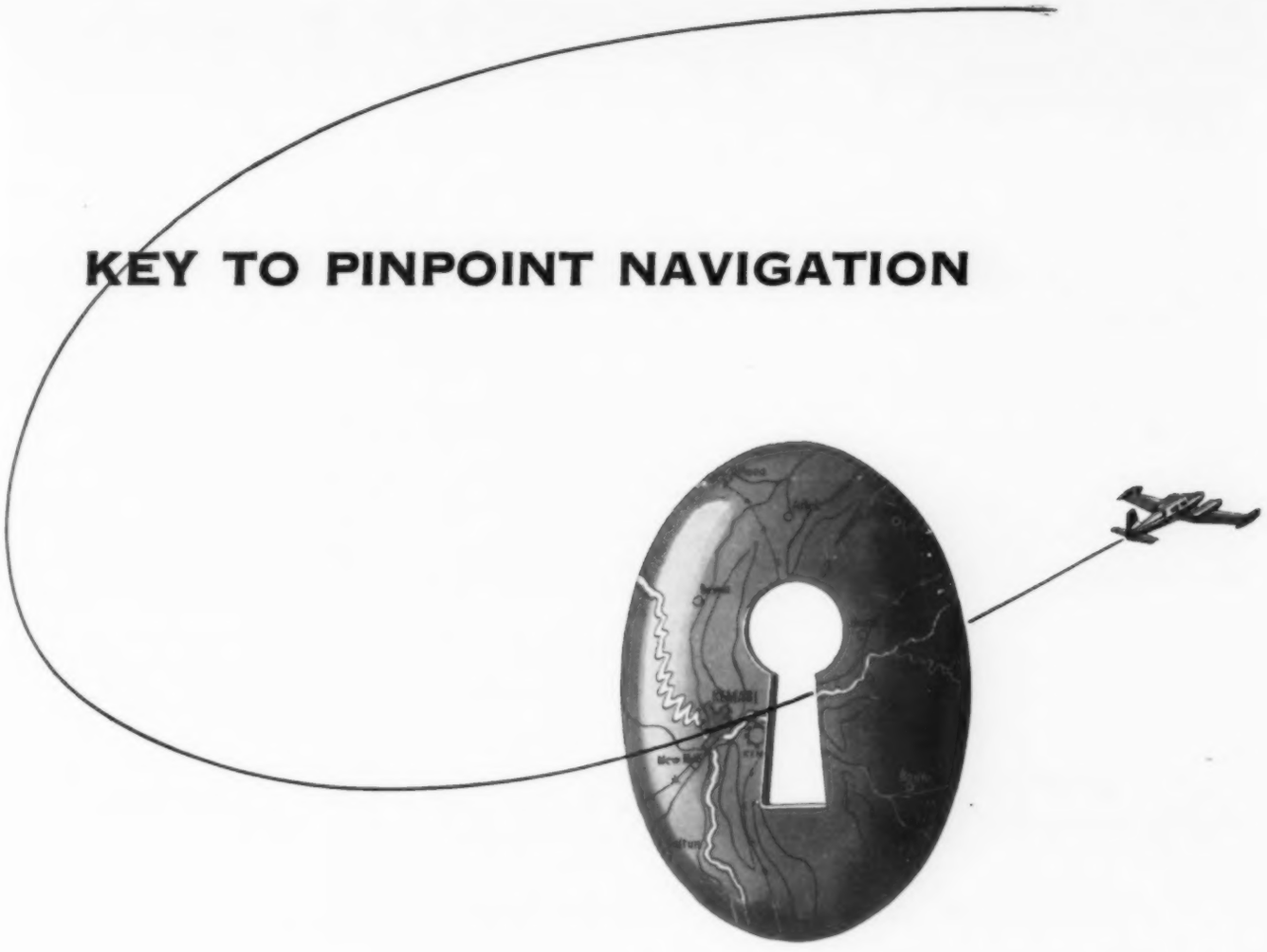
These operators report cleaner oil inlet screens, remarkable freedom from piston ring and valve sticking, plus reduced rockerbox coking. *It all adds up to the fact that Gulf's new high-quality Aircraft Engine Oil gives maximum operating efficiency and increased periods between engine overhauls.*

Try it for yourself and *see.*

Gulf Oil Corporation · Gulf Refining Company

GULF
AVIATION PRODUCTS

KEY TO PINPOINT NAVIGATION



Omni/ILS Plus **ARC's** *New Course Director*

This new and advanced navigation instrumentation system is a complete PACKAGE, consisting of single or dual omnirange equipment, teamed with the new ARC COURSE DIRECTOR.

The COURSE DIRECTOR consists of a computer which gives precise steering data and a compass slaved gyro which provides *stabilized*, accurate, directional information.

The system supplies the pilot with AUTOMATICALLY COMPUTED steering information on all ENROUTE OMNI TRACKS, HOLDING, INBOUND, OR OUTBOUND ILS OPERATIONS, thus providing PRECISE APPROACHES. Complete automatic crosswind compensation is provided for ALL operations.

The computer performs all your calculations and presents correct steering data directly on the cross-pointer meter. The gyro needs no resetting at any time, since precession is completely compensated. *You simply set in your selected course and steer to keep the needle centered*. The system will then either intercept or precisely follow the desired track as required.

So – fly with pinpoint precision – greater ease and increased safety. See your nearest ARC Dealer or write us today for complete detailed illustrated literature.

Omni Receivers • 900-2100 Mc Signal Generators • UHF and VHF Receivers and Transmitters • 8 Watt Audio Amplifiers • 10-Channel Isolation Amplifiers • LF Receivers and Loop Direction Finders • CD-1 Course Directors

Dependable Airborne Electronic Equipment Since 1928

Aircraft Radio Corporation BOONTON, NEW JERSEY

Here's our own portrait of the beautiful new 680-Super. Two factory Supers logged nearly 1,000 hours of flying before the first delivery to a customer was made late last month. The 680-Super has a 2,670-lb. useful load at 7,000 lbs. gross and will cruise at 230 mph. on 65% of rated power at 15,000 ft. with a range of 1,480-1,600 miles. Its Lycoming engines are rated at 340 hp. each for take-off and 320 hp. each for continuous operation. —(FLIGHT MAGAZINE Photo.)

Supercharged 680-Super Commander

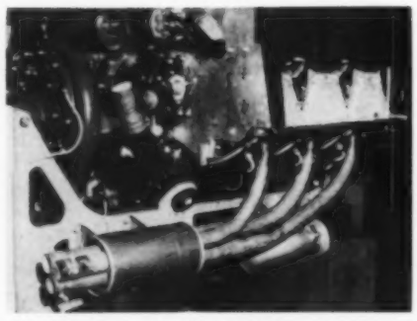
Rated power up to 10,000 ft. gives Commander top performance

By TOM ASHLEY

ENGINE supercharging for light twins, long desired for best performance from high-elevation airports and at cruising altitudes above those where sea level engines run out of throttle, has become a reality for the first time on the new Model 680-Super Aero Commander. This 5 to 7-place model, first flown in April, 1955, began going to customers last month from Aero Design & Engineering Company at Oklahoma City.

Before making a trip in the new 680-Super, we had kept tab on some of the factory flying during which a test airplane and a demonstrator logged nearly 1,000 hours in the air with the superchargers prior to the first delivery. This flying was the basis on which the factory pegged the 680-Super's cruising speed at 230 mph., using 65% of rated power at 15,000 ft. or 70% of rated power at 10,000 ft. When a trip in the 680-Super finally became possible last month, we found the airplane good for what had been claimed for it. Evidently the 680-Super has every bit of the reserve power expected from supercharging. It represents a milestone in business flying progress.

We found ourselves wanting to compare the 680-Super with the 560-A Aero Commander but soon found this impractical. Whereas the 560-A's unsupercharged GO-480-D1A engines are rated at 275 hp. each for take-off, the Super's GSO-480-A1A-6 engines are rated at 340 hp. for take-off. This gives the Super about 20% more horsepower at sea level and this advantage becomes ever greater with altitude. The unsupercharged engine begins running out of throttle when it leaves sea level but the supercharged Lycomings maintain full throttle on up past 9,000 ft. above sea level. Where the 560-A Commander's full-throttle power falls off to about 70% of rated power at 10,000 ft., the 680-Super's engines, because of ram effect, can still deliver rated power at 10,000 ft. So at 10,000 ft., the 680-Super has 640 hp. available at rated power as compared to 364 hp. in the 560-A.



This picture of the 680-Super's engine mount and Lycoming GSO-480-A1A-6 shows the single-stage supercharger at left in front of the firewall. It is gear driven at a ratio of 11.27 rpm. to 1 crankshaft revolution and its blower has a 6.75-in. diameter. Below it is heater for carburetor.

In terms of airplane empty weight, it cost only 150 lbs. to obtain this excess power. But it made possible a gross weight of 7,000 lbs. and a useful load of 2,670 lbs. for the 680-Super, as compared to the 560-A's gross weight of 6,000 lbs. and 1,802-lb. useful load. The net gain in useful load of about 850 lbs. includes provision for 66 gals. of additional fuel in outboard tanks, bringing total fuel supply to 223 gals. for 7 hrs. of endurance or 1,480 to 1,600 miles in range. This additional fuel, plus an additional gallon of oil for each engine, takes less than half of the gain.

In terms of performance, the result is reflected in the fact that power loading remains better at 10.3 lbs. per hp. for the 680-Super than the 560-A's

10.9 lbs. per hp., despite the 1,000-lb. increase in gross weight. Wing loading is increased from 24.9 lbs. per sq. ft. for the 560-A to 29.2 lbs. per sq. ft. for the 680-Super, giving it more stability and smoothness. Stall speed is 59 mph. for power-on with gear and flaps extended, 71 for power-off with gear and flaps extended and 79 for power-off with gear and flaps retracted. Minimum single-engine control speed is only 85 mph., which is attained rapidly because of the airplane's very fast acceleration on take-off. Take-off distance to clear a 50-ft. obstacle at sea level is 1,575 ft. and increases to only 2,375 ft. at an elevation of 8,000 ft. Landing distance over a 50-ft. obstacle at sea level is 1,630 ft. and is only 2,015 ft. at an elevation of 8,000 ft.

Where the supercharging also pays off, in addition to providing full power at high-elevation fields for take-off, is in climbing out. At 150 mph. indicated air speed and at gross weight, the 680-Super will climb out at more than 1,400 ft. per min. and will top 10,000 ft. in 8 to 9 minutes, still indicating 150 mph. and 1,000 fpm. as it reaches 10,000 ft. For a 500-fpm. cruising climb, it will indicate 190 to 180 mph.

The power is always there when the 680 has to be climbed. For example, most of our cross-country travel in the 680 was on IFR flight plans, and on one leg it was necessary to climb from our cruising altitude of 8,500 ft. to stay on top in crossing a build-up. With a setting of 37.5 inches and 2,750 rpm. for about 80% power in climbing, the 680 indicated 180 mph. at 700 fpm.

Cruising out again at 10,500 ft. and with the outside air temperature at 45 degrees, we obtained several interesting settings for cruise. These were as follows:

Ins. MP	RPM.	% Pow.	Mph. IAS	Mph. TAS
32	2,400	62	185	220
34	2,550	65	188	225
36	2,750	80	196	236

For single-engine performance, the 680-Super will cruise 170 mph. at 10,000 ft., pulling 75% of power from the other engine. It has a single-engine ceiling of 15,000 ft., which is tops for all production-model twins and also will top all mountainous terrain on U. S. airways with room to spare. This phenomenal performance makes possible continued safe flight across our

Aero Commander Model 680 Super Factory Data

Power Plants: Two supercharged, 6-cyl. Lycoming GSO-480-A1A-6 engines, each rated at 340 brake horsepower at 48 ins. and 3,400 rpm. for take-off and at 320 brake horsepower METO or normal operation at 45 ins. and 3,200 rpm. Max. cruise 37 ins. and 3,000 rpm. for 80% METO, performance cruise 33 ins. and 2,750 rpm. for 70% METO, economy cruise 32 ins. and 2,600 rpm. for 60% METO, and maximum range cruise 29 ins. and 2,400 rpm. for 50% METO.

High Speed, rated power at 10,000 ft., mph	**260**
Cr. Spd., 70% rated power, 10,000 ft., mph.	**230**
Cr. Spd., 65% rated power, 15,000 ft., mph.	**230**
Stall Spd., gear and flaps down, power on, mph.	**59**
Stall Spd., gear and flaps down, power off, mph.	**71**
Stall Spd., gear and flaps up, power off, mph.	**79**
Gross Weight, lbs.	**7,000**
Useful Load, lbs.	**2,670**
Empty Weight, lbs.	**4,330**
Fuel Capacity, gals. usable	**223**
Range, 55% rated power, 10,000 ft., 30-min. res., mi.	**1,480**
Range, maximum economy, miles	**1,600**
Rate of Climb, fpm.	**1,600**
Minimum Single-engine Control Spd., mph.	**85**
Single-engine Rate of Climb, fpm.	**310**
Service Ceiling, ft.	**24,200**
Single-engine Ceiling, ft.	**15,000**
Wing Loading, lbs. per sq. ft.	**29.2**
Power Loading, lbs. per hp.	**10.3**
Take-off Distance to Clear 50 ft., ft.	**1,575**
Landing Distance Over 50-ft. Obstacle, ft.	**1,630**
Span, ft.	**44**
Length, ft.-ins.	**35-.5**
Height, ft.-ins.	**14-9**

NOTE: All performance is for gross weight and standard atmospheric conditions unless otherwise stated. All speeds guaranteed within plus or minus 3%. All climbs, ranges and altitudes guaranteed within plus or minus 8%. CABIN DIMENSIONS: Height 53 ins., width 52 ins., distance from forward cabin bulkhead to rear cabin bulkhead 127.5 ins.; cu. ft. in this area, 177, baggage compartment 31 by 47 by 41 ins. for 32 cu. ft. volume, cabin door opening 43 by 26 ins., baggage door opening 23.5 by 19.5 ins. STANDARD EQUIPMENT: Included in empty weight are the following—artificial horizon, directional gyro, turn and bank, rate of climb, airspeed indicator, sensitive altimeter, 8-day clock with elapsed time dial, magnetic compass, trim tab indicator, tachometer (dual type), manifold pressure gauge (dual type), two engine gauge units (oil temp., oil pressure and fuel pressure), cylinder head temperature gauge (dual type), carburetor air temp. gauge (dual type), hydraulic pressure gauge, vacuum gauge, 2 volt ammeters, 2 fuel quantity gauges, Hartzell 3-blade constant-speed, full-feathering propellers, dual high-

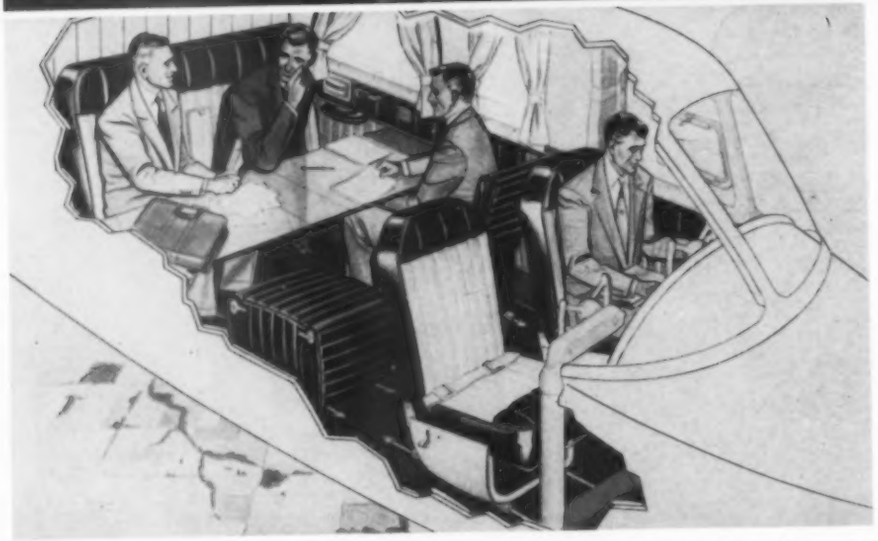
(Continued on page 61)

Clean lines of the Aero Commander are shown in this view of a 560-A over the Florida Keys. Unsupercharged Lycoming GO-480-DIA in this model is rated at 275 hp. for take-off.
—(FLIGHT MAGAZINE Photo.)

highest airways in engine-out emergencies.

In fuel consumption, the 680-Super has been averaging 30 to 32 gph. at 60 to 65% of power. On a hop from St. Louis to LaGuardia Field in New York, a 936-mile distance via airways, it was cruised at 13,000 ft. using 32 inches and 2,600 rpm. and indicating 190 mph. with outside air temperature of minus 8 degrees Centigrade for 233-mph. true air speed. Average fuel consumption on this hop was 35 gph., at an average ground speed of 253 mph. block-to-block, the trip taking 3 hrs. 43 mins.

Eyebrow panel for radio controls is atop the 680-Super's instrument panel, which groups gyros, clock, air speed, altimeter, turn and bank and climb indicator at left, cross-pointers, omni needle and ADF at center, and engine instruments and gauges at right. Overhead panel is shown below and contains ignition, fuel, lights, heater and radio switches plus starter buttons; elevator and rudder trim controls and circuit breakers.



Functional layout of 680-Super's cabin emphasizes roominess. Rear seat has three seat belts. Hassocks or chairs are track-mounted for two more persons, with aisle between, and pilot and co-pilot chairs are track-mounted and have multi-position reclining backs. Hassocks can be used as seats, leg rests, or can be unfolded to provide berths for sleeping. They also open to reveal storage bin, ice chest or toilet.
—(Aero Design Photos by Wayne Entriken.)

Here are some factory figures for low-power cruise and long range with the 680-Super:

Alt. Ft.	Rpm.	% Pow.	TAS Mph.	Range, Mi.
5,000	2,400	50	185	1,480
10,000	2,400	50	190	1,550
15,000	2,400	50	198	1,625

The supercharged Commander we had on the trip was N680SC, its license number being the same as the manufacturer's model number.

Six Eight Zero Sugar Charlie's empty weight of 4,570 lbs. includes 174.75 lbs. of extra equipment, listed in the manual with weights for each unit as follows: Hassock 45 lbs., Lear Omni 14.2 lbs., Lear LVTR-36 transmitter and receiver 26.25 lbs., Lear ADF-12 26.6 lbs., ARC 15-D Omni 27.2 lbs., R89B Glide Slope receiver 21.5 lbs., and Lear marker beacon receiver 14 lbs.

This gives airplane 680SC a 2,430-lb. useful load at 7,000-lb. gross weight. Usable fuel capacity of 223 gals. and 8.5-gal. oil capacity at a total of 1,405 lbs. leave Six Eight Zero Sugar Charlie a payload of 1,025 lbs. for people and baggage with full tanks. With three of us and 120 lbs. of baggage aboard, we were within 365 lbs. of gross.

The Lycoming GSO-340-A1A-6 six-cylinder engines are rated at 340 hp. for take-off at 48 ins. of manifold pressure and 3,400 rpm. Their maximum continuous operation rating is 320 hp. at 45 ins. and 3,200 rpm. Tachometer markings are as follows: Red Line (never exceed) 3,400 rpm., Yellow (caution) 3,200 to 3,400 rpm., Green (normal) 2,400 to 3,200 rpm. Manifold pressure gauge markings are as follows: Red Line (never exceed) 48 ins., Yellow (caution) 45 to 48 ins., and Green (normal) 15 to 45 ins.

Air speed indicator markings are as follows: 60 to 125 mph. indicated air speed, flap operating range; 69 to 210 IAS, green (normal); 210 to 270 IAS, yellow (caution) and 270 IAS, red (never exceed). Air speed placard limits are as follows: Never Exceed, 270 IAS; Maximum Structural Cruising, 210 IAS; Maneuvering, 160 IAS; Maximum Gear Extension, 160 IAS; Maximum for One-Half Flap, 150 IAS; Minimum Single-engine Control Speed, 85 IAS. The manual gives the airplane's positive limit load factor as 3.5 G's.

Recommended power for take-off is

48 ins. and 3,400 rpm., this being reduced to 45 ins. and 3,200 rpm. in the climb-out. Best climb speed is 120 mph., with power reduced to 40 ins. and 3,000 rpm. for climb. This is at 87% hp., or about 280 hp. per engine.

The operating manual's figures for normal rate of climb using maximum continuous power, ¼ flap with gear down and with 120-mph. air speed are listed as follows:

Air Temp., deg.	50°	75°	100°
Sea Level, fpm.	1,350	1,290	1,234
8,000 ft., fpm.	1,189	1,132	1,082

Single-engine rate of climb figures from the manual, at 110 mph., gear and flap up, are 362 fpm. at sea level and 205 fpm. at 8,000 ft. at 50 degrees and 332 fpm. at sea level and 176 fpm. at 8,000 ft. at 75 degrees.

Take-off and landing distances to clear a 50-ft. obstacle, using ¼ flap at an air speed of 99 mph. for take-off and full flap and 92.5 mph. for landing, are listed in the manual for no-wind conditions as follows:

Air Temp., deg.	50°	75°	100°
TO at SL, ft.	1,500	1,660	1,800
Lndng. at SL, ft.	1,605	1,660	1,710
TO at 8,000 ft., ft.	2,375	2,610	2,840
Lndng. at 8,000 ft., ft.	2,015	2,080	2,150

The factory says it has not experienced any abnormal difficulties in its first year of flight-testing the supercharged Lycoming. Lycoming itself tore down the engine during this period to satisfy its people about its operations and the only unusual wear they reported was in some impeller bearings which they blamed on faulty installation in the original build-up, rather than on operation. The view at Aero Design is that the GSO-480 is the "finest engine we have ever used."

For supercharging, the GSO-480 engine was equipped with beefed-up crankshaft and connecting rods, chromed barrels as standard and reinforcing clamps at cylinder base flanges. It uses 100-octane fuel.

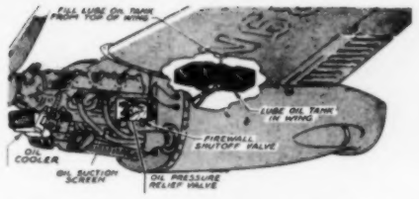
Its take-off and rated power specifications list brake horsepower available at the propeller and after the engine supplies necessary power to operate the geared supercharger. Thus the engine is developing much more power than the ratings indicate. To deliver 340 hp. for take-off in the 680-Super at 48 ins. and 3,400 rpm., the GSO-480 actually develops a total of 442 hp. — the supercharger uses 102 hp. of this. When cruised at 65% of METO, or normal, power, and delivering 208 hp. to the propeller, the GSO-480 actually develops 258 hp., some 50 hp. of this being used by the supercharger.

This supercharger is a single-stage, single-speed blower operating off the crankshaft through a gear train which steps its speed up to 11.27 revolutions for each crankshaft revolution. For take-off power, as an example, the supercharger wheel is turning up 38,318 rpm. It operates continuously at the 11.27 to 1 ratio.

In addition to packing more weight of air into the cylinders for increased power at altitudes above sea level, it also provides more efficient fuel-air mixture and fuel metering to the cylinders — it sucks all of its air through the carburetor, along with the fuel, and fuel and air are churned together inside the supercharger. The efficiency of this is noticed in the smoothness of engine operation, reflecting improved combustion. The GSO-480 is noticeably smoother in all respects than the normal, unsupercharged reciprocating engine and this is due to the better balance and more even power impulses provided by the supercharger.

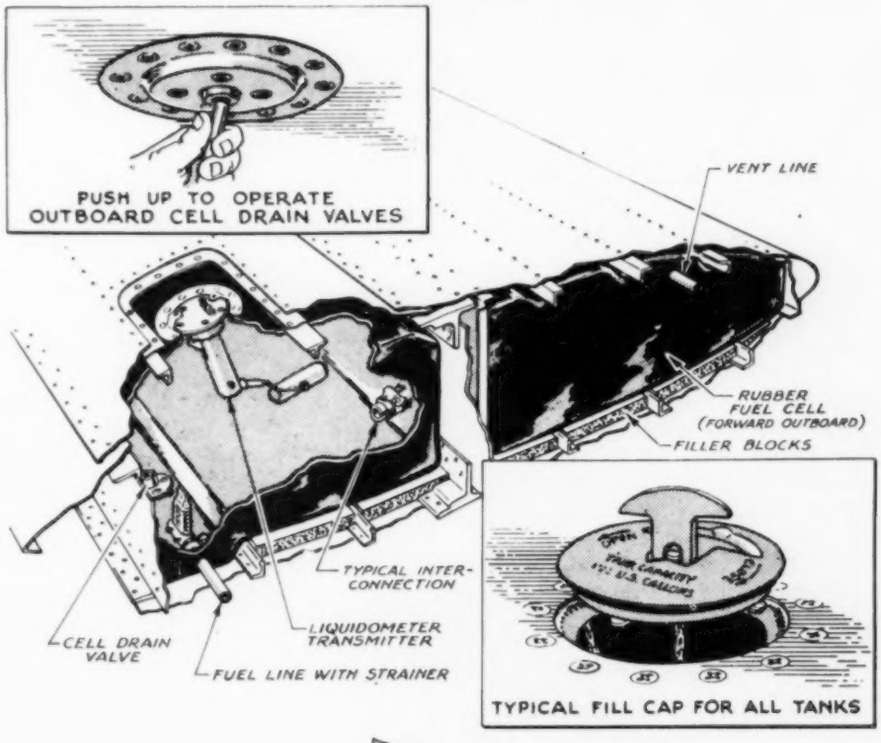
More efficient fuel metering from supercharging also pays off another significant dividend — lower fuel consumption. Lycoming figures for specific fuel consumption are .465 lbs. per

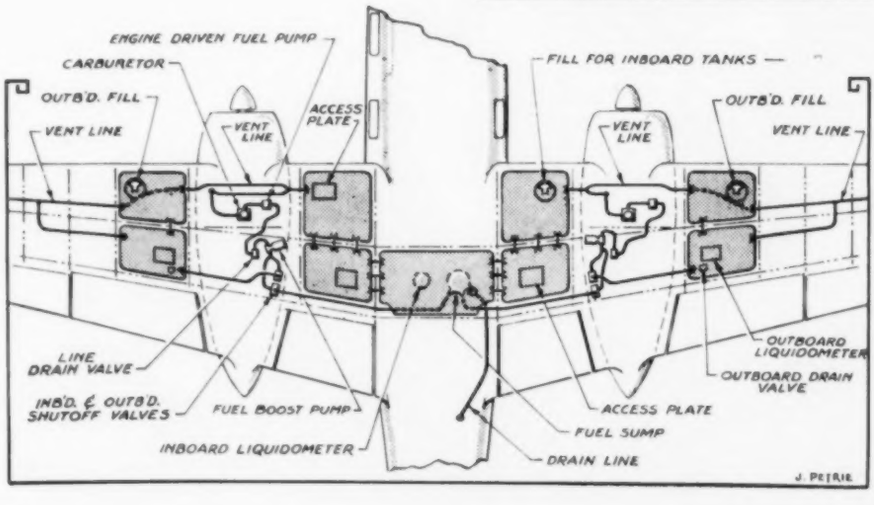
(Continued on page 60)


FILL TUBE OIL TANK FROM TOP OF WING
LUBE OIL TANK IN WING
FIREWALL SHUTOFF VALVE
OIL COOLER
OIL SUCTION SCREEN
OIL PRESSURE RELIEF VALVE

Oil system in the 680-Super shows 4.25-gal. tank in wing for each dry-sump engine, with fire-wall shut-off. Oil cooler is under nose of propeller reduction gear.

Details of the 680-Super Commander's fuel system and distribution of tanks are shown in this sketch by J. Petrie, Aero Design illustrator. Total usable fuel supply is 223 gals. in bladder cells.





Cessna's vice president in charge of finance, Frank Boettger, is shown at left above addressing distributors in Panama. Left to right in the pictures are Willy Hoffman, chief pilot for Lloyd's Colombiana, and his father, Hans Hoffman, Colombia distributor; Miguel Yamuni, Costa Rica distributor, and M. F. Mellinger, Cessna; Dave Lowsley, distributor for Honduras, Guatemala and El Salvador, with Charles Jackman of Cessna.

First Latin American Sales Meeting

Cessna sees growing export potential after factory meeting in Panama

AMERICAN manufacturers of business planes are intensifying selling efforts in overseas markets to make 1956 exports the largest yet. Figures for the industry from John Payne, Aircraft Industries Association export director, show that exports of civil aircraft weighing 6,000 lbs. or less increased more than 57% during January of this year over the average monthly export rate for last year. The increase over the average monthly rate in 1954 was more than 200 per cent.

The January figures were 83 utility aircraft valued at $844,824 exported by five manufacturers to 23 foreign countries as compared with the 1955 monthly average of 53 aircraft valued at $624,460 and with the 1954 average monthly export of 41 aircraft valued at $593,589. Firms reporting shipments are Aero Design & Engineering Co., Beech Aircraft, Cessna Aircraft, Piper Aircraft and Taylorcraft, Inc.

Heaviest current overseas promotional efforts are those of Cessna, which exported to 26 countries a total of 226 utility planes with a retail value of $3,320,700 during 1955 to set a new record for the company in export business. This was a 32% increase and topped Cessna's 1954 exports by more than $750,000. Frank Martin, Cessna's commercial sales manager, said his firm's exports accounted for about 40 per cent of the total export business done by all manufacturers of light utility business planes.

Martin recently conducted Cessna's first overseas sales meeting for distributors and dealers in Latin and South

HERE ARE CESSNA DISTRIBUTORS AND DEALERS FROM 25 LATIN AMERICAN COUNTRIES AT MARCOS GELABERT AIRPORT, PANAM FOR

Left to right below at the Cessna meeting in Panama are: Hector Mariscal, Mexico City distributor; Jorge Diez, Bolivia distributor; Arturo Muller, Panama dealer; M. F. Mellinger, Cessna; Dr. Arias and Col. Roul Arias, presidential assistant of Panama.

Left to right above are: Alberto Reyes, distributor for Chile; Horacio Torrendel, distributor for Uruguay; Cessna Sales Manager Frank Martin; Juan Bidegaray, Torrendel manager in Uruguay; Nelson Batista, Cassio Muniz legal advisor; Helio Muniz, distributor at Sao Paulo, Brazil; and Jose Brandao, Muniz manager.

America. It was held in Panama City, Panama, and was attended by representatives from 25 countries. Martin and other Cessna factory officials flew new 1956 Cessna models down to the Panama meeting from Wichita and all five models of the Cessna line were shown, demonstrated, and delivered at Marcos Gelabert Airport near Panama City. The new tricycle Cessna 182, for example, was demonstrated in Panama more than a month before being shown publicly in the States. This was the first Cessna 182 to be delivered. A 172 was flown to Panama by Bob Chatley, factory sales promotion and advertising manager.

Cessna has distributors and dealers

PANAM FOR SHOWINGS OF 1956 CESSNA MODELS. FACTORY OFFICIALS FLEW THE DEMONSTRATORS TO THE MEETING FROM WICHITA.

Cessna Sales Skyrocket

Frank Martin (right), Cessna commercial sales manager, shows Lee Renshaw and Fred Roscoe, territorial sales managers, a graphic chart portraying how January-February sales of Cessnas soared from last year's 248 airplanes with a $3,163,100 retail value to 531 airplanes valued at $7,995,000 for the 1956 period. The new tricycle Model 172 accounted for 282 units or more than half of the 1956 sales, this one model outselling all Cessnas during the same period last year. Figures for March will go higher because of introduction of the new tricycle Model 182 in mid-March. Last year total Cessna shipments amounted to 1,745 airplanes. At its current rate of delivery, Cessna is expected to produce over 2,500 airplanes this year.

all over the world, but those in Latin America last year accounted for more than 60 percent of all Cessna exports. Its top ten export distributors for 1955 were Aviones, S. A., Mexico City; Hans Hoffman, Colombia; Leo Lopez T., Chihuahua, Mexico; Philippine Air Transport, Philippine Islands; Flugzueghandels, A. G., Switzerland; Aviones Centro Americanos, Honduras; Rural Aviation, New Zealand; Commercial Air Services, South Africa; Alberto Reyes, Chile, and Siro A. Comi, Argentina.

"Business flying is just gathering steam in Latin and South America," Martin commented after the Panama sales meeting. "It has a tremendous potential because of the great need for safe, fast, dependable transportation serving business and industry which are expanding at an increasing rate. There are many problems, such as national restrictions in certain countries, red tape, dollar availability in some areas, and the need for greater and more effective sales efforts on the part of the aircraft industry. These problems are being tackled in earnest and progress will accelerate from now on. We are confident that 1956 sales will show a large increase."

Cessna officials conducting the Panama sales meeting, in addition to Martin and Chatley, were Frank A. Boettger, vice president; Charles Jackman, export manager; Melvin F. Mellinger and William D. Eikenberry, export regional sales managers; and Ozzie Kangas, service manager.

Overseas distributors for Cessna around the world are as follows:

PERU: Aeroimport, S.A., Jorge Giuffra, Lima; COSTA RICA: Agencia de Aeronaves, Miguel Yamuni, San Jose, with Luis Morales as dealer in Panama; ECUADOR: Arosemena Hermanos, Jose Arosemena, Guayaquil; HONDURAS: Aviones Centro Americanos, David W. Lowsley, Tegucigalpa, with dealers Thomas J. Keane at Guatemala City, Tito Gutierrez at San Salvador and Moutray Vanegas Bermudez at Managua.

MEXICO: Aviones, S.A., Hector Mariscal, Mexico City, with dealer Roberto Sada at Monterrey; CHIHUAHUA, MEXICO: Servicio Aero Leo Lopez T., Chihuahua City; BRITISH HONDURAS: British Colonial Airlines, Inc., Steward Baker, Belize.

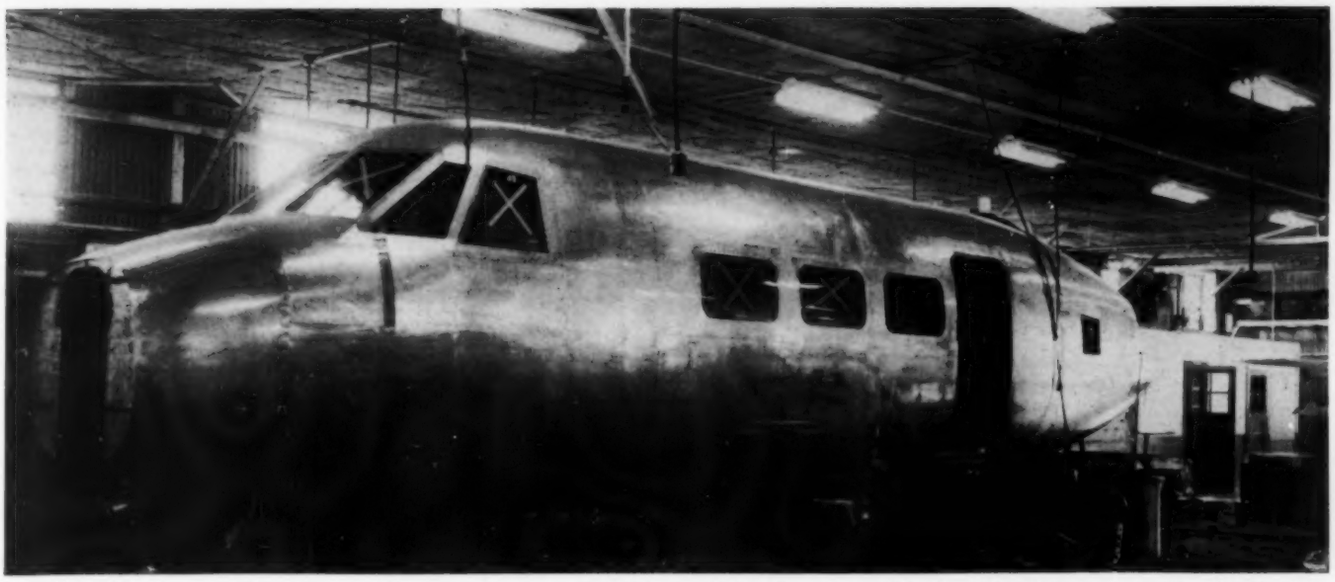
BRAZIL: Cassio Muniz, Erasmo Toledo, Sao Paulo; ARGENTINA: Siro A. Comi, Buenos Aires; PARAGUAY: SAC Manuel Ferreira, Donald S. Kent and Cesar Ferreira, Asuncion; BRITISH WEST INDIES: Earl Gardner, Jamaica; PUERTO RICO: L. W. Magruder, San Juan.

COLOMBIA: Capt. Hans Hoffman, Bogota; BOLIVIA: Jorge Diez, La Paz; CHILE: Alberto Reyes & Cia., Alberto Reyes and Sam Yrarrazaval, Santiago; VENEZUELA: Salta, C. A., John B. Bogart and Pat Grant, Caracas; URUGUAY: Horacio Torrendel, S. A., Horacio Torrendel, Jr., and J. B. Bidegaray, Montevideo.

CAMBODIA: Aero Club Khmer, Phnom-Penh; FRANCE: Air-Tourist, Paris; INDONESIA: Aircraft Export Corp., Hawthorne, Calif., and Djarkata; HOLLAND: Avio Diepen N.V., The Hague; BRITISH EAST AFRICA: Campling Bros. & Vanderwal, Ltd., Nairobi, Kenya; SOUTH AFRICA: Commercial Air Services, Ltd., Johannesburg.

(Continued on page 59)

The two-day Panama Cessna meeting included social events as well as business sessions. At the table below are some of the wives, with Mrs. Frank Boettger of Wichita at right. By the airplane, left to right, are members of the distributor firm of Salta in Venezuela with M. F. Mellinger of Cessna (center) and Miss Pat Grant, instructor for Salta, and John Bogart of Caracas.



Here's the fuselage of the 4-engine Cessna 620, pressurized for an 8,000-ft. cabin altitude while flying at 18,000 ft. Fuselage height is 7 ft., with 6-ft. headroom, and floor level at door-stair is 4.8 ft. above the ground.
—(Cessna Photo.)

Pressurized Cessna Ready for Tests

THE first pressurized, 4-engine business air transport of American design — Cessna's long-awaited Model 620 — evolved into a fully-assembled airplane at the end of March when fuselage and wing were mated at the factory. Taxi tests were to begin early in April with first flight a possibility for May.

First announced in August, 1954, the promising 620 development has been described by Dwane Wallace, Cessna president, as having produced gratifying results in a long series of component tests in the factory's expanded and ever-growing experimental shops. This is the largest experimental project now under way at Cessna, which has doubled its total research and developmental program since 1953, investing about $3.7 million in 1954 and about $4.5 million during 1955 for research and development. The 620 is a private venture by Cessna.

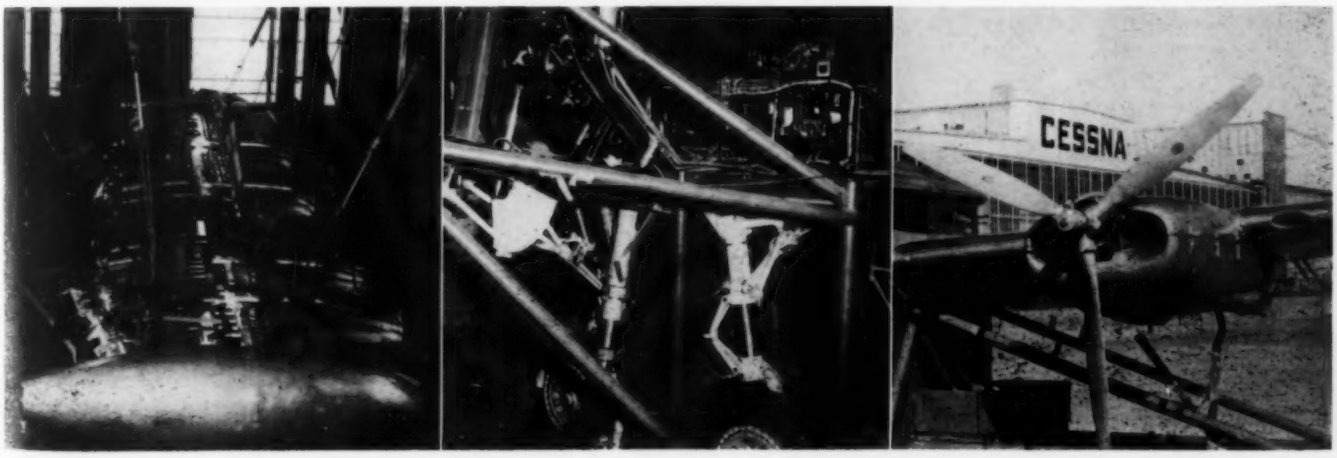
He pronounced structural proof tests of the pressurized cabin, tail surfaces and nose gear as successful and said the 620's tricycle landing gear, as well as the hydraulic and electrical systems and other components, have been subjected to a series of functional tests including 4,500 complete cycles of operation. These included motion-picture studies of critical lock mechanisms and switch installations to uncover, in slow motion, any deficiencies not normally visible.

The 620 is a 7 to 10-place transport designed for all-weather corporate flying. It will gross about 13,650 lbs. or more and provide 535-gal. fuel capacity, including wing-tip tanks of 65 gals. each, for 1,700-mile maximum range. Design speeds include 269-mph. maximum speed at 15,000 ft. and more than 235-mph. cruising speed on 70% power at 18,000 ft., with a 3-engine service ceiling of 22,500 ft.

Its power plants are supercharged 6-cylinder Continental GSO-526 engines delivering 320 hp. for take-off and 290-hp. rated power up to an altitude of 15,000 ft. Endurance at 65%

(Continued on page 60)

Component testing of the Cessna 620 is shown in the photos below. Left to right are the wing, showing engine nacelles and 65-gal. tip tanks; landing gear with elaborate test gear for hydraulic and electric systems; and engine test stand for a Continental GSO-526 power plant installation.
—(Cessna Photos.)



First flight view of the new Temco Model 51 2-place, single-jet primary trainer shows the distinctive mid-wing design of the 300-knot lightplane, which grosses 4,137 lbs. It is powered by a 920-lb. Continental YJ69-T9 turbo jet.
—(Temco Photo.)

Temco Jet Trainer

TEMCO Aircraft Corporation's expanded engineering department, with several important achievements recorded in landing large production subcontracts through component designs of Temco's own, have developed several projects for complete aircraft. Among these is an all-new primary jet trainer which Temco hopes will make it a prime manufacturer by winning military orders.

The new 2-place trainer, financed by Temco itself as a private venture and known as its Model 51, made its first flight on March 26, 1956, at the Dallas factory. Its normal gross weight is 4,137 lbs. and it is powered by a 920-lb.-thrust Continental YJ69-T9 turbo jet engine.

Bob McCulloch, Temco president, said the Model 51 has a stall speed of 60 knots at its normal landing weight with flaps and gear extended, a maximum level flight speed of 300 knots at 15,000 ft., and a maximum dive speed of 450 knots. "The 51 has real, true jet performance combined with ideal primary trainer handling characteristics," McCulloch said. "It is at least 50 mph. faster at maximum level flight speed than any other fully-equipped single-jet primary trainer's quoted performance."

It features tandem cockpit seating for instructor and student with the instructor's seat elevated for superior visibility. Ejection seats are used and cockpit arrangements follow military requirements.

The mid-wing light jet has engine air intakes located on each side of the fuselage below and ahead of the wing. They look like scoops and are not

(Continued on page 51)

Long cockpit with tandem seating extends far ahead of the Temco 51 wing. Note scoop-like engine air intake below and ahead of wing, short tail-pipe beneath tail boom, and wide landing gear. Temco will demonstrate it to military forces.
—(Temco Photo.)

The first Super 18 Beechcraft to cross the Pacific was flown by Jack Ford to Tokyo for delivery to Yomiuri Shimbun, publishers. It is pictured here at Haneda Airport upon its arrival.

Beechcrafts Fly the Pacific

THE twin-engine Beech Super 18 executive transport is popular among Japanese businessmen. Beechcrafts were formerly ferried from the Beech factory in Wichita by way of the North Atlantic, Europe, the Middle East, India, Southeast Asia and around the Communist Chinese coast via island hopping to Japan. Now they are ferried directly across the Pacific, being the first U. S. production business planes to fly the Pacific.

Jack Ford, president of Fleetway, Inc., of Burbank, who specializes in ferrying Beech and other makes of American and British planes to all corners of the world, blazed the pioneering commercial Beech 18 delivery route across the Pacific in April, 1955. He trimmed two to four weeks off the normal delivery schedules via Europe.

Two more Beech Super 18's were flown across the Pacific recently by Ford's pilots and delivered to Japanese purchasers. Pilots Coburn Webb and Michael Bogle described the 6,500-mile delivery as "routine," completed 4 days after their departure from San Francisco.

The Super normally carries 282 gals. of fuel for a range of 1,405 miles. This is increased to 632 gals. for the Pacific flight, on which the longest hop is 2,400 miles from San Francisco to Honolulu. From Honolulu the course is via Wake Island, about 2,000 miles, and thence about 1,700 miles to Tokyo. Weather planning is essential so that head winds can be minimized. This can involve long waits along the way for favorable conditions, as non-stop hops of as much as 14 hrs. and more are involved. Licensed navigators are carried.

The first Super 18 flown across the Pacific by Ford went to Yomiuri Shimbun, Tokyo publishers. The second and third Super's went to the Japanese Coast Guard. ★ ★ ★

Japanese newsmen in a Beech Twin-Bonanza met Yomiuri Shimbun's new Super 18 and escorted it to Haneda Airport (below). There a reception committee feted the ferry crew after their 6,500-mile business plane flight from San Francisco to Tokyo.

—(Yomiuri Shimbun Photos.)

THE BEECHCRAFT SUPER 18 can be purchased with confidence . . . not only for its reliability, ruggedness and adaptability but also with confidence that it will deliver the ultimate in comfortable air travel. Long, big, distinctive, modern in design and powerful in appearance, this outstanding airplane carries eight persons in relaxing, luxurious comfort. Millions of hours flown each year by Beechcraft 18s throughout the world attest to the unsurpassed reliability and acceptance of this thoroughly proved airplane.

Ask about Beechcraft's Leasing and Financing Plans. Distributors listed below, or Beech Aircraft Corp., Wichita 1, Kansas, will supply full details upon request.

Alabama — Southern Airways Co., Birmingham

California — Norman Larson Co., Van Nuys (Los Angeles); Pacific Aircraft Sales Co., Oakland

Colorado — Combs Aircraft, Inc., Denver

Delaware — Atlantic Aviation Service, Inc., Wilmington

Florida — Florida Airmotive, Inc., Lantana (West Palm Beach)

Georgia — Southern Airways Co., Atlanta

Illinois — Butler Airplane Sales, Chicago

Indiana — Roscoe Turner Aeronautical Corp., Indianapolis

Iowa — Elliott Flying Service, Davenport; Graham Flying Service, Sioux City

Kansas — Aircraftco, Inc., Wichita; Topeka Aircraft Sales & Service, Topeka

Louisiana — Currey Sanders Aircraft Company, Inc., Shreveport; Baton Rouge Aircraft, Inc., Baton Rouge

Massachusetts — Atlantic Aviation Corp., Boston

Michigan — Francis Aviation, Lansing

Minnesota — Gopher Aviation, Inc., Rochester

Montana — Butte Aero Sales & Service, Inc., Butte

New Jersey — Atlantic Aviation Corp., Teterboro

New Mexico — Cutter-Carr Flying Service, Inc., Albuquerque

New York — Page Airways, Inc., Rochester; Atlantic Aviation Corp., Teterboro

North Carolina — Piedmont Aviation, Inc., Winston-Salem; Southern Airways Co., Charlotte

Ohio — Ohio Aviation Co., Vandalia; Youngstown Airways, Inc., Youngstown

Oklahoma — Aircraftsmen, Inc., Oklahoma City; Tulsair Distributors, Inc., Tulsa

Oregon — Flightcraft, Inc., Portland

Pennsylvania — Atlantic Aviation Service, Inc., Philadelphia; Beckett Aviation, Pittsburgh

South Carolina — Hawthorne Flying Service, Charleston

Tennessee — Capitol Air Sales, Inc., Nashville; Memphis Aero Corp., Memphis

Texas — Tradewind Airport Corp., Amarillo; J. R. Gray Co., Inc., Dallas; J. D. Reed Co., Inc., Houston; Alamo Aviation, Inc., San Antonio

Utah — Kemp & Kelsey Airservice, Inc., Salt Lake City

Virginia — Piedmont Aviation, Inc., Norfolk

Washington — Flightcraft, Inc., Seattle

Wisconsin — Anderson Air Activities, Milwaukee

AND BUSINESS, TOO!

Join hundreds of BEECHCRAFT SUPER 18 owners at the Kentucky Derby — ***and yet not lose one minute from your busy work-week!*** Travel in luxurious comfort at 215 miles-per-hour ***direct*** to Louisville, just like on your everyday business schedules — which you make yourself with your own Beechcraft Super 18. Convenient fold-away tables provide facilities for work to be done enroute. Picture-window visibility in the Super 18 reveals all the beauty of flight in your own personal transport. Easy-entrance stairs and interior walk-around comfort guarantee the ultimate in relaxing, worry-free travel. More than three times as many Beechcraft 18s have been purchased by progressive businesses as have any other twin-engine executive airplane! These owners ***know*** they can enjoy the finer things in life and still save up to 75 per cent of their travel time with a Beechcraft Super 18 Executive Transport.

Beechcraft

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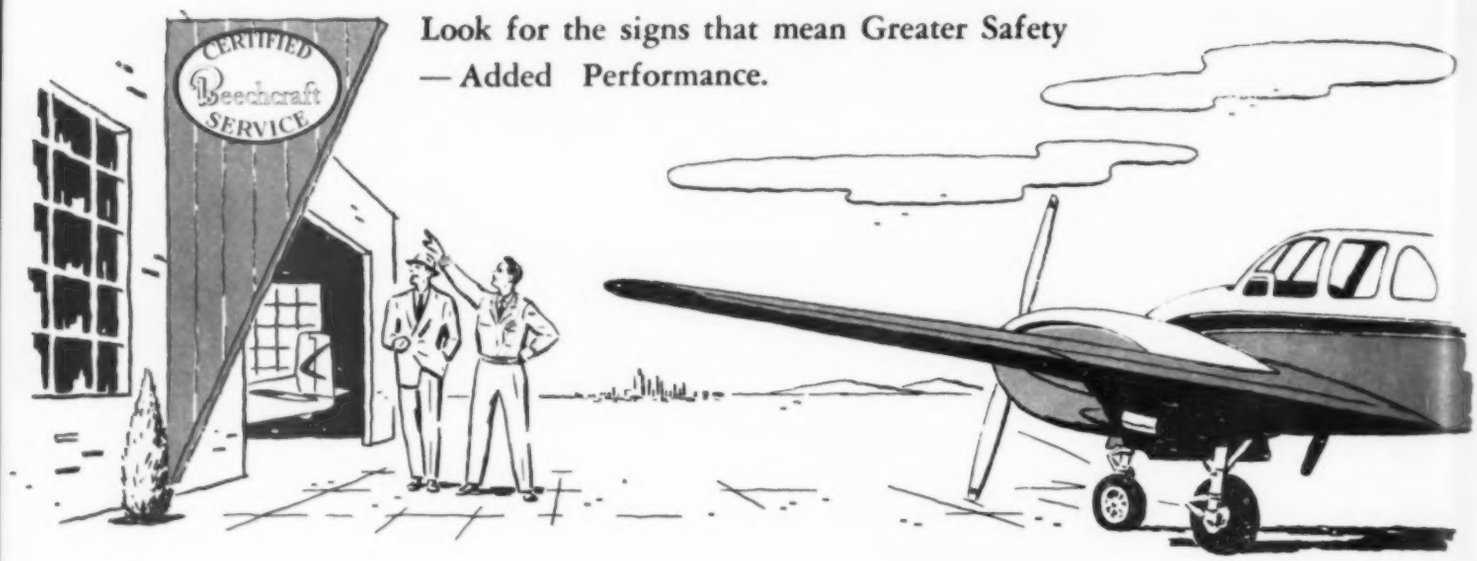

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ANDERSON AIR ACTIVITIES
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Truax Field, Madison, Wisc.

ATLANTIC AVIATION CORP.
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Teterboro, New Jersey
Logan Airport, East Boston, Mass.

ATLANTIC AVIATION SERVICE, INC.
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Philadelphia International Airport, Philadelphia, Pa.

BUTLER CO., AVIATION DIVISION
Municipal Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
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New heights of performance demanded by today's busy executives also demand new standards of precision.
Beechcraft owners have long been accustomed to the high performance and precision built into Beechcrafts. We are dedicated to preserve these qualities through our know-how of maintenance of Beechcrafts in completely equipped facilities.
You can count on our trained specialists to use their precision Beechcraft service methods to maintain top performance of your airplane. Let us explain our regular maintenance plan . . . Visit us soon.

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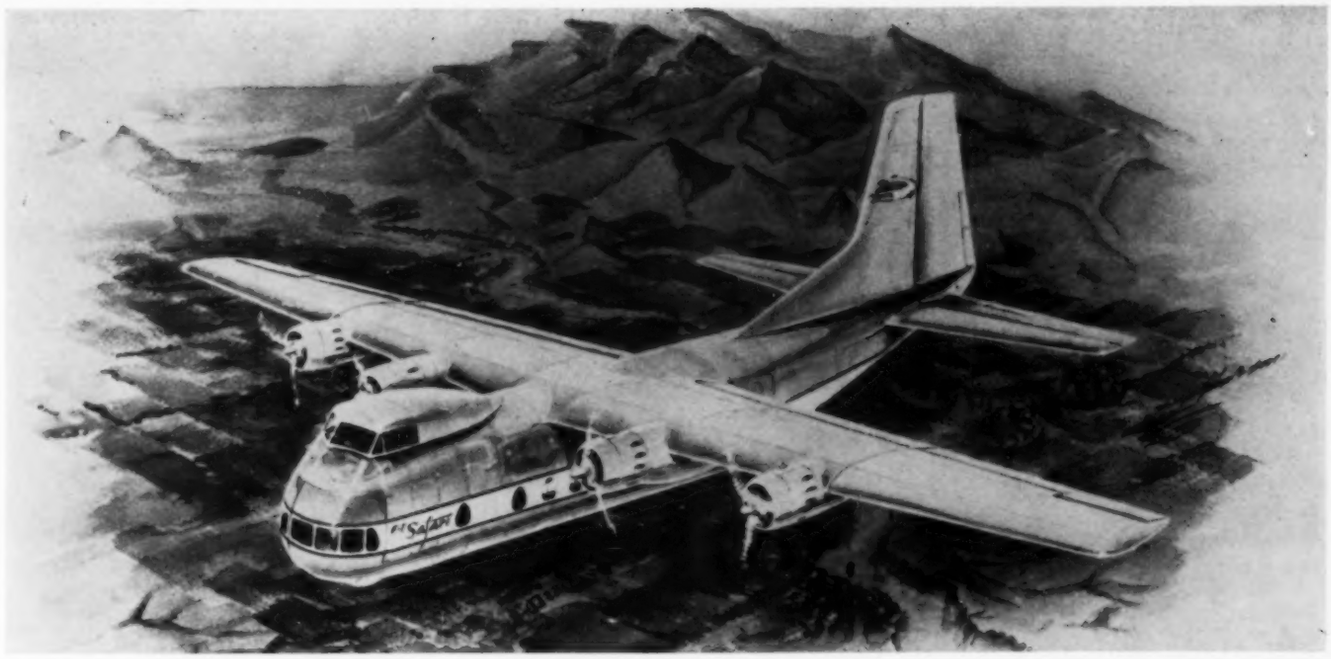


Powered by four 600-hp. Pratt & Whitney engines, the Frye F-1 Safari grosses 37,000 lbs. and as a cargo plane can carry up to 12,000 lbs. of payload. For feeder air service, it can accommodate 45 passengers. It was designed for short-field operations from back-country areas. It will cruise at 171 mph. and land at 62 mph. Span is 109 ft. 6 ins., length 75 ft. 10 ins. and height 30 ft. Basic prices are $365,000 for the cargo version and $395,000 for the passenger version.

Frye F-1 Safari

WHILE contracts are being negotiated for its production, the new F-1 Safari 4-engine DC-3 replacement design of the Frye Corporation is creating worldwide interest among operators of bush, local service and cargo air services. Many are journeying to Fort Worth for a look at a recently-completed mock-up and the first letters of intent to buy have been signed two operators in Alaska for 6 airplanes with options for more.

Jack Frye, long-time aviation executive and former president of Trans-World Airlines, who heads the new company with offices in the Texas Hotel in Fort Worth and a plant at Eagle Mountain Airport near there, said Raymond I. Petersen, president of Northern Consolidated Airlines, has signed a letter of intent to buy three F-1's with an option of two more, and Sigurd Wien, president-general manager of Wien Alaska Airlines has signed a letter of intent to buy three F-1's.

Frye expects to conclude manufacturing arrangements by May 15 and plans for production deliveries beginning in mid-1957. His design and engineering company will not engage in production but will contract for this from a firm already equipped and staffed for production. The prototype is scheduled to make its first flights around the end of 1956. Wind tunnel tests at Cal Tech are said to have confirmed all design data.

Designed as a short-field transport and carrying payloads up to 12,000 lbs. at a 37,000-lb. gross weight, the F-1 will have four 600-hp. Pratt & Whitney Wasp engines proved in thousands of T-6 trainers and other aircraft, will cruise at 170 mph., will land at 56 to 62 mph., and will have an 18,000-ft. three-engine ceiling and a 9,000-ft. two-engine ceiling with two engines inoperative on one side, Frye said.

It will be available in three versions —cargo, cargo-passenger, and passenger or executive. Its chief design feature, made possible by the high wing and tricycle landing gear, will be an unobstructed cabin with the cockpit atop the nose. In the passenger version, it will seat up to 51 persons in a compartment 45 ft. 2 ins. long, 9 ft. 10 ins. wide and more than 6 ft. high. On average short-haul flights up to 600 miles, its direct seat-mile operating cost will be between 1.27 and 1.47 cents. The cargo version will have an all-clear compartment 39 ft. 6 ins. long and 9 ft. 1 in. wide, with a clam-shell nose-door providing an opening 106 ins. wide by 75 ins. high and with a side rear-door 76 by 75 ins., floor level being truck-bed height at each. This version will carry a payload in excess of 8,000 lbs. on 1,000-mile hops and up to 12,000 lbs. over shorter distances at direct costs of 10 to 11 cents per ton-mile, Frye said.

"Our design utilizes only engines, propellers, materials and construction methods proven over 15 years of operations throughout the world," Frye said. "It features simplicity and ease of operation and maintenance and offers many desirable advantages over anything available today, all for the single purpose of reducing operating costs."

Both Petersen of Northern Consolidated and Wien praised the design after signing their orders for the Frye. Wien said he feels the F-1 most nearly satisfies the complexities of passenger and cargo requirements of Alaska and similar areas, and will reduce operating costs while improving service. He now operates C-46, DC-3 and Cessna aircraft. Petersen, who now operates DC-3, Norsemen, Cessna and Stinson aircraft, said the Safari is an Alaskan airline operator's "dream."

No firm price has been announced for the Safari, but basic prices are $365,000 for the cargo version and $395,000 for the passenger version, both of these being for fixed gear. These prices are subject to revision.

(Continued on page 44)

Latest British agricultural airplane is this 270-hp., 3,675-lb. Percival P.9. It has a useful load of 1,825 lbs. and lands at only 37 mph.

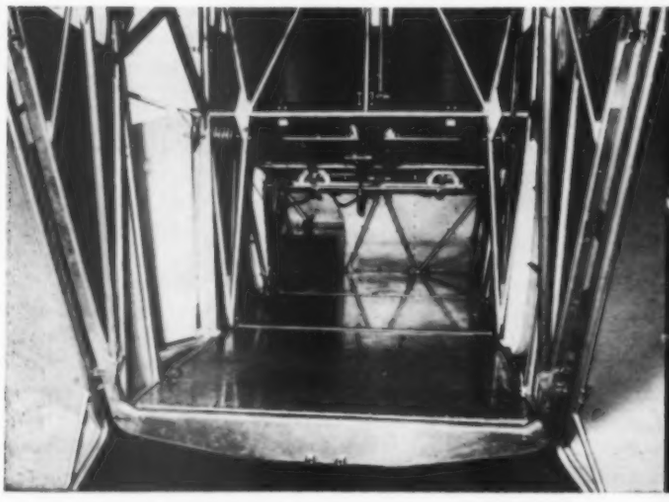
Work Plane For Farming

EDGAR PERCIVAL, the well-known British airplane designer, toured the United States, New Zealand, Australia, India and Southeast Asia areas to interview operators, pilots and ground crews for ideas he has incorporated since 1954 in a new agricultural airplane. It is the Percival P.9, which has been flying since December, 1955.

The P.9 features a small cabin, with 45 sq. ft. of unobstructed floor, behind and below the pilot and with a rear clam-shell door beneath the tail boom. This cabin, of 185-cu. ft. volume, can carry 5 seats or several sheep or small animals, cargo or chemicals. With a 270-hp. engine the P.9 has an 1,825-lb. useful load at a gross weight of 3,675 lbs. and an empty weight of 1,850 lbs. Span is 43 ft. 6 ins., length 29 ft. 6 ins. and height 8 ft. 9 ins. Performance figures include 37-mph. landing speed in light condition, take-off run with 5-mph. wind of 185 yds., 960-fpm. rate of climb, 122-mph. cruising speed and 137-mph. top speed.

★ ★ ★

Pilot sits above cargo and engine in the P.9. Its rear clam-shell doors (left, below) and side door are shown below, with low, unobstructed 45-sq. ft. floor. Cabin can seat 5 persons but is intended for 185 cu. ft. of cargo.



Either 270-hp. or 295-hp. 6-cylinder Lycoming engines and Hartzell propellers are installed on the McKinnon-Hickman Super Widgeons. At 5,500-lb. gross weight, useful load is 1,675 lbs., take-off run 600 ft., take-off from glassy water 10 seconds, rate of climb 1,750 fpm., and cruising speed 170 mph. at 10,000 ft. on 62.5% hp.

All-New Super Widgeon

ALL-new Super Widgeons are now being delivered to business users of aircraft. They were produced in France under Grumman license as the SCAN 30 and are the same as the American G-44A Widgeon, according to J. C. Welsch of New York, long-time business aircraft salesman who purchased them in France, where they were produced after Grumman stopped building them here. Welsch shipped them to Portland, Oregon, for custom conversion by the McKinnon-Hickman Company, which has produced numerous other Widgeon conversions. The first of the all-new Super Widgeons was delivered recently to Reading Aviation, Reading, Pa.

At Portland the airplanes were stripped of all electrical wiring, hydraulic lines and instruments. Wings and flaps are covered with metal and at the same time extra tanks are installed in the outboard panels making the total gas capacity 154 gallons (the standard Widgeon carries 108 gallons). Elevators, rudder and ailerons are re-covered with fabric. Landing gear and hull are modified for 5,500 lbs. gross weight land and water (the old gross weight on the Grumman G-44A was 4,700 lbs. land and water). New tinted windshield and side windows are installed. The cockpit and cabin are super soundproofed. A new instrument panel design allows for blind flight group, all engine and operational instruments, and affords room for the installation of ADF, omni and three radios all mounted on the instrument panel. The electrical system is 24-volt with all switches and circuit breakers mounted overhead on the pilot's side. Standard seating arrangement is pilot and co-pilot or passenger seats (the pilot seat is adjustable), three reclining chairs mounted in the cabin. An extra seat, making a total of six, is available when an escape hatch is installed. A third window is mounted on the right-hand side.

The McKinnon-Hickman conversion is installed using either 270-hp. Lycoming engines and Hartzell three-bladed propellers or the 295-hp. Lycoming engines. This is the only conversion using 270 or 295 hp. Lycoming engines with the over-wing exhaust system for extreme quietness in the cabin.

The interior upholstering and exterior paint combination are made to customers' specifications. A 20,000 BTU gasoline heater is installed with outlets under each seat and at the windshield for defrosting.

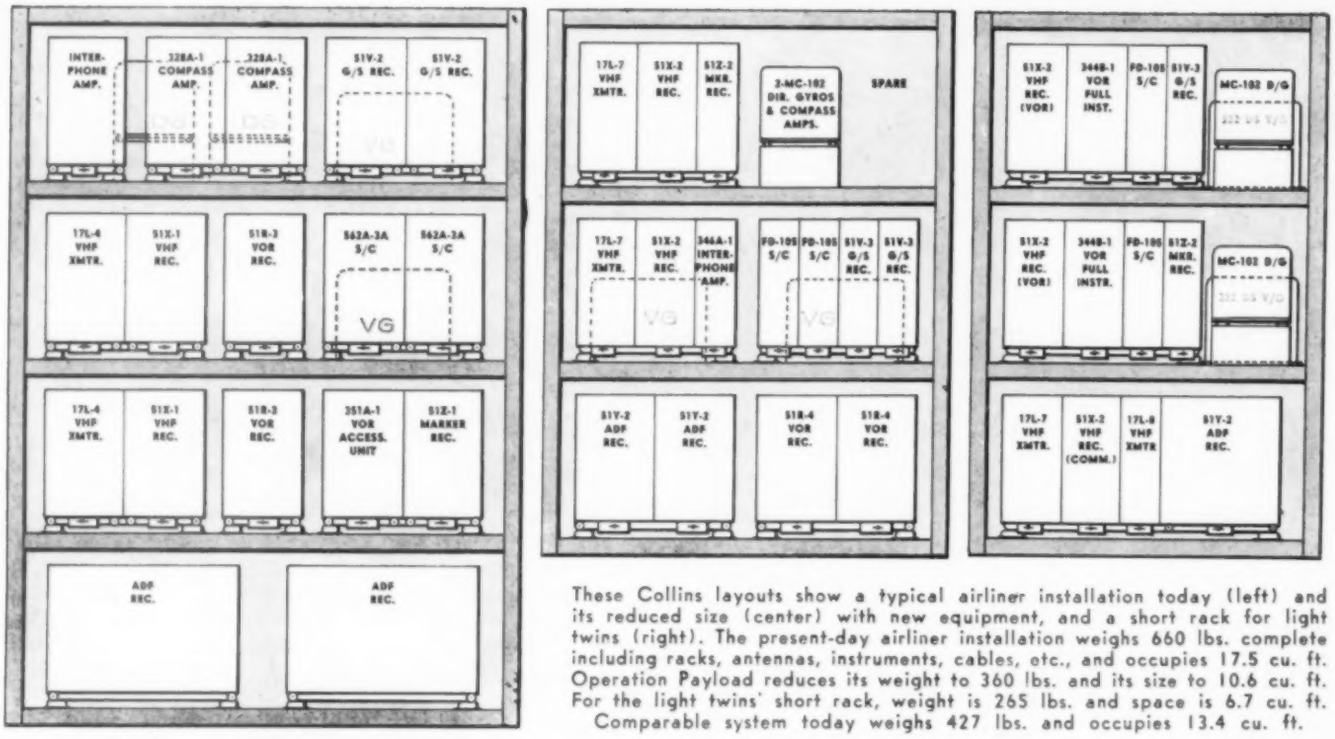
Performance specifications are as follows:

Take-off Run, ft.	600
Take-off, glassy water, secs.	10
Rate of climb, fpm.	1,750
Climb to 10,000 ft., mins.	10
Cr. Spd., SL, 75% hp., mph.	170
Cr. Spd., SL, 65% hp., mph.	160
Cr. Spd., 10,000 ft., 62.5% hp., mph.	170
Max. Spd., SL, mph.	185
Service ceiling, ft.	18,000
Landing speed, mph.	62
Single engine ceiling, ft.	5,000
Range, 30 min. res., miles	1,000
Empty Wt., less radio, lbs.	3,825
Gross weight, lbs.	5,500

The price of the new Super Widgeon, flyaway Portland, Oregon, less radio, is $70,000.

There are some forty-nine McKinnon-Hickman Super Widgeons flying.

Three interior views of the custom McKinnon-Hickmon Super Widgeon are shown below. At left is the cockpit with new instrument panel and overhead switches and circuit breakers. Seating includes three reclining chairs in addition to pilot and co-pilot seats. A sixth seat is available and cabin has a third window on the right side.



These Collins layouts show a typical airliner installation today (left) and its reduced size (center) with new equipment, and a short rack for light twins (right). The present-day airliner installation weighs 660 lbs. complete including racks, antennas, instruments, cables, etc., and occupies 17.5 cu. ft. Operation Payload reduces its weight to 360 lbs. and its size to 10.6 cu. ft. For the light twins' short rack, weight is 265 lbs. and space is 6.7 cu. ft. Comparable system today weighs 427 lbs. and occupies 13.4 cu. ft.

More Radio In Less Space

RAPID strides are being accomplished in the reduction of size and weight for airborne electronic equipment and one of the most interesting examples is a new Collins Radio project which this company calls "Operation Payload."

The basic philosophy behind Operation Payload is one of increased reliability of Collins equipment in smaller packages. In most cases, this is accomplished by use of standard components in advanced designs requiring basically less circuitry than previously possible.

There are considerable dividends from lighter equipment and components. They are, for example, more resistant to vibration and shock than heavier units, a Collins expert pointing out that a mouse can be dropped 5 feet to the ground without damage "but don't try this with a cow." Of significance is the fact that the new components and simplified designs have reduced power requirements to a fraction of that of electronic equipment now in service.

These developments will bring far-reaching benefits to operators of business planes as well as to the airlines and military forces. Consider, for instance, the fact that the extensive use of transistors in advanced Collins equipment affords a power reduction as great as 10 to 1 over conventional vacuum tube circuits. The transistors also make for much cooler equipment and a several-fold increase in service life. An example is the receiver of the new DF-201 Collins automatic direction finder. It has been designed with 8 vacuum tubes and 13 transistors. Its total power consumption has been reduced to 28 volt amperes as compared to approximately 90 volt amperes for equipment presently used.

The advantages of such power reduction, Collins points out, are manifested in reduced aircraft cabling wire size, smaller inverters, and reduced generator requirements. This can result in a better generator safety margin during single-engine operation.

In business flying, Collins says its Operation Payload project will provide light twin-engine corporate planes for the first time a full complement of communication and navigation facilities for IFR flight comparable to airline equipment.

The new Operation Payload systems and equipments will be successors to the Collins equipment line now most widely used in the airline industry — such as the 17L transmitter, 51R navigation and 51V glideslope receivers. Complementing the program are new developments in ADF, DME, radar transponders, Selcal and weather radar.

New equipments included in the Collins Operation Payload project are listed as follows:

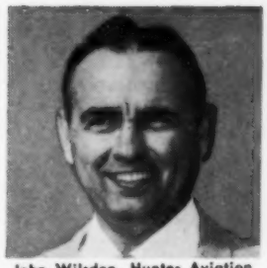
Model 51X-2 — VHF communication receiver, 880 channels with 50-kc spacing, receiver with integral power supply in short ⅜ ATR case, weight 12 lbs.; Model 344B-1 — VOR-LOC instrumentation in short ⅜ ATR, 12 lbs.; 51R-4 — VOR receiver, provides VOR-LOC VHF reception, full instrumentation including RMI, servo, OBI and integral power supply, ½ ATR, 23 lbs. (eliminates accessory unit); 17L-7 — 25-watt VHF transmitter, 630 channels, complete with modulator and power supply in short ⅜ ATR case, 14 lbs.; 17L-8 — standby 3-watt, 90-channel VHF standby transmitter, complete with modulator and power supply, 5 lbs.; 51V-3 — 20-channel glideslope receiver complete with power supply in short ¼ ATR case, 6.4 lbs.; 51Z-2 — marker beacon receiver, 3-light instrumentation, complete with power supply in short ¼ ATR, 5 lbs.; DF-201 — ADF system (51Y-1 receiver with electrical remote tuning, ½ ATR, 15 lbs.; 51Y-2 identical with 51Y-1 except

(Continued on page 52)

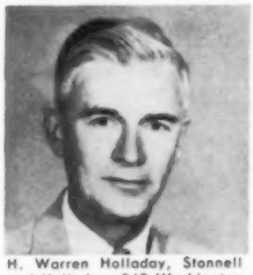
Don Vest, Vest Aircraft & Finance Co., P. O. Box 5306, Sky Ranch Airport, Denver, Colorado.

Gene Hudman, Stonnell and Holladay Aircraft Sales, Carolina Division, Municipal Airport, Charlotte, North Carolina.

Peter Graves, Southern Ohio Aviation Sales Co., Dayton Municipal Airport, Vandalia, Ohio.

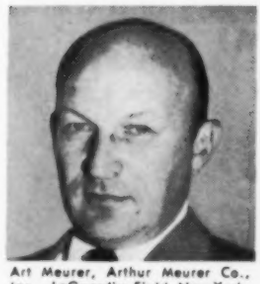


John Wilsdon, Hunter Aviation Co., P. O. Box 122, Lambert Field, St. Louis, Missouri.

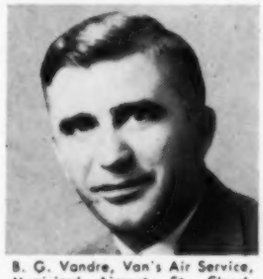


H. Warren Holladay, Stonnell and Holladay, 843 Washington Building, Arlington Towers, Arlington, Virginia.

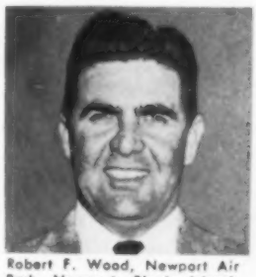
H. Leibee Wheeler, Buffalo Aeronautical Corporation, Buffalo Municipal Airport, Buffalo, New York.



Art Meurer, Arthur Meurer Co., Inc., LaGuardia Field, New York, N. Y.

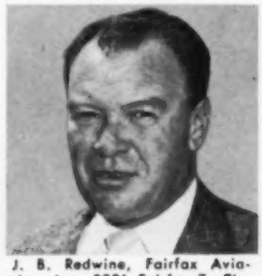


B. G. Vandre, Van's Air Service, Municipal Airport, St. Cloud, Minnesota.



Robert F. Wood, Newport Air Park, Newport, Rhode Island.

A. M. "Sime" Bertolet, Reading Aviation Service, Inc., Municipal Airport, Reading, Pennsylvania.

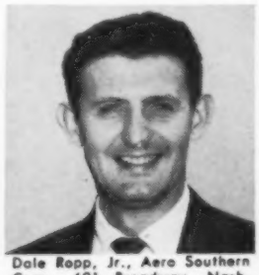


J. B. Redwine, Fairfax Aviation, Inc., 3301 Fairfax Trafficway, Fairfax Airport, Kansas City, Kansas.

Max R. Brand, Aero Commander Dist. (Downtown Air park), Hangar 3, Municipal Airport, Tulsa, Oklahoma.

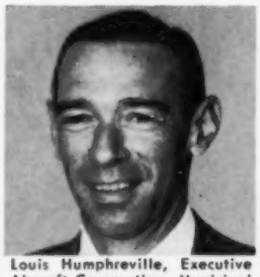
Ira Hartzog, Aero-Tex Corporation, 3300 Love Field Drive, Dallas, Texas.

E. H. "Ted" Tolan, National Aero Sales Corp., Midway Airport, Chicago, Illinois.



Dale Repp, Jr., Aero Southern Corp., 601 Broadway, Nashville, Tennessee.

W. H. "Bill" Buchanan, Sales Manager, Johnson Air Interests, Inc., Horlick-Racine Airport, Racine, Wisconsin.



Louis Humphreville, Executive Aircraft Corporation, Municipal Airport, Pontiac, Michigan.

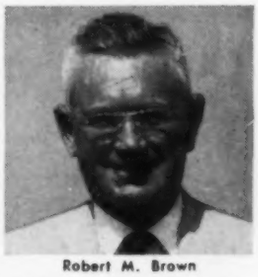
L. S. McIntire, Vest-Livingston Aircraft, Inc., International Terminal Building, International Airport, Oakland, California.

John A. "Jack" Bauman, Santa Monica Aviation, 3011 Airport Avenue, Municipal Airport, Santa Monica, California.

Herrol Bellomy, L. B. Smith Aircraft Corp., Miami International Airport, Miami, Florida.

Lucien M. Taillac, Trans-Aire Corporation, Pan-Air Building, New Orleans Airport, New Orleans, Louisiana.

Joseph H. Frost, Jr.



Robert M. Brown

Commander Sales Company, Terminal Building, International Airport, San Antonio, Texas.

NATION-WIDE SALES and SERVICE

AERO DESIGN Commander

AERO DESIGN AND ENGINEERING COMPANY

BULAKES AIRPORT • OKLAHOMA CITY, OKLAHOMA

EASTERN REGION HUNDRED GRANDERS: Left to right are Paul Momenteller, LearCal commercial sales manager; Art Ward, Atlantic Aviation, Teterboro, N. J.; Lynn Hampton, Atlantic Aviation Service, Wilmington, Del.; Ed Mahood, Sunny South Aircraft Service, Ft. Lauderdale, Fla., and C. J. Breitwieser, Lear vice president and division general manager.

Lear's Sales Award Winners

THE 33 people pictured on this page form the backbone of a fast-growing, multi-million dollar Lear aircraft radio products sales program directed by Paul Momenteller. Included are 25 Lear distributors all over the country. They recently received "Hundred Grand" gold trophies in regional sales meetings conducted by Lear. Four of the distributors doubled their $100,000 sales targets for 1955 — Air Oasis at Long Beach, Mid-States Aviation at Northbrook, Ill., Santa Monica Aviation and Yingling Aircraft at Wichita. ★ ★ ★

MIDWEST REGION HUNDRED GRANDERS: Left to right are C. J. Breitwieser of Lear; King Cruse, Cruse Aviation, Houston; D. A. Cody, Gray Aircraft Service, Dallas; Bill Lear, Jr., Howard Aero Service, San Antonio; John Brownlee, Tulsair Distributors, Tulsa; Lou Clinton, Clinton Aviation, Denver; A. K. Wilson, Yingling Aircraft, Wichita; Ernie Williams, Aircraft Sales, Ft. Worth; Norman Blake, Aircraftsmen, Oklahoma City; Paul Momenteller of Lear, and Bob Wolin, Lear regional sales manager.

CENTRAL REGION HUNDRED GRANDERS: Left to right are Paul Momenteller of Lear; Mel Walston, Walston Aviation, East Alton, Ill.; Jimmy Van Atta, Northern Air Service, Grand Rapids; Jerry Francis, Francis Aviation, Lansing; John Russell, Skymotive, Chicago; John Wilson, Mid-States Aviation, Northbrook, Ill.; Bob Nulty, Great Lakes Airmotive, Ypsilanti; Howard Gregory, Des Moines Flying Service; C. J. Breitwieser of Lear and Jerry Ehle, Lear regional sales manager.

WEST COAST REGION HUNDRED GRANDERS: Left to right are John Baker, Baker Aircraft, Long Beach; Ernie Nelms, Skyways, Portland; Si King, Flightcraft, Portland; N. L. Reighard, Santa Monica Aviation; Larry Hunt, Air Oasis, Long Beach; Paul Momenteller of Lear, and Don Fairchilds, LearCal sales promotion manager.

Bird from under the Sea

Regulus, U. S. Navy's First Operational Missile

Proved in the tough environment of the sea—its versatility established in flights from carriers, submarines and cruisers—Chance Vought's Regulus in 1955 became the U. S. Fleet's first operational guided missile.

Behind this achievement lay nearly a decade of intensive guided missile work and 38 years of Vought experience as an aviation pioneer and leader.

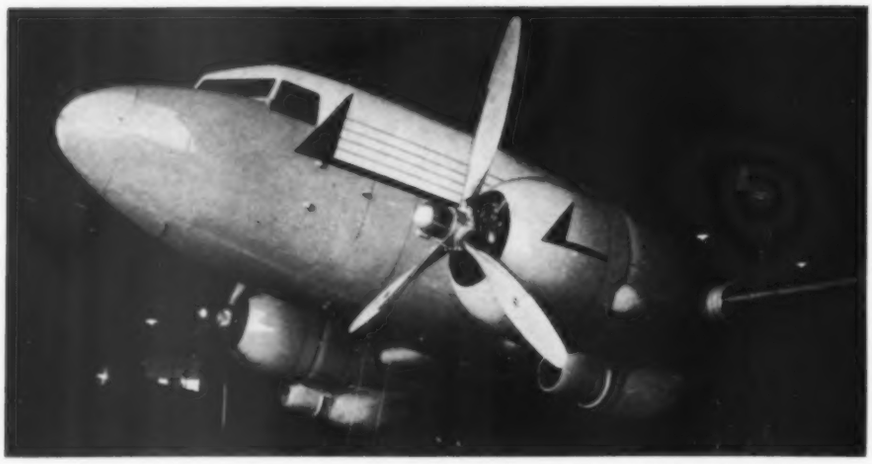
Introduction of Regulus to the Fleet added another powerful, modern offensive weapon to the Navy's seagoing forces. Like many other significant Vought aviation "firsts," it emphasized a tradition of engineering excellence.

In guided missiles, as well as piloted aircraft, the creative spirit is strong at Vought. Because of this spirit, America can continue to expect bold new weapons from Chance Vought—as long as the need for them exists.

Regulus saves tax dollars ...designed in test and training versions with a retractable landing gear, Regulus can be landed to safely fly again. This unique feature means more missile data gathered, more men trained at far less cost!

CHANCE VOUGHT AIRCRAFT
INCORPORATED · DALLAS, TEXAS

DESIGNER AND BUILDER OF HIGH PERFORMANCE MILITARY AIRCRAFT SINCE 1917



DC-3 with landing gear retracted and wheel doors closed. Note speed cowl, short stacks.

High Performance Executive DC-3

HIGH performance for an executive DC-3 conversion featuring Miner speed cowling for its Pratt & Whitney R-1830-94 engines, Pan American wheel doors and retractable tail wheel has been reported by L. V. Emery, president of Executive Aircraft Service, Dallas, which performed the conversion. The airplane is owned by International Petroleum and is based in Colombia, South America. Ernesto Valdez, its captain, said the modifications have made it 20 to 25 mph. faster, placing its cruising speed at 210 to 215 mph. as compared to 190 mph. for the ordinary executive DC-3 without the modifications.

The hop reported by Emery took off at a gross weight of 26,900 lbs., using 52 inches of manifold pressure and 2,800 rpm., for 1,350 hp. It climbed out at 1,400 feet per minute rate of climb while indicating 120 mph.

At an altitude of 7,400 ft., an engine was feathered and the DC-3 indicated 155 mph. with the other engine pulling 1,100 hp. with 42.5 inches and 2,600 rpm., outside air temperature of 5 degrees C. Still on single-engine at 10,000 ft., using high blower for 1,000 hp. at 42.2 ins. and 2,600 rpm., with outside air temperature of 0 degrees C., it indicated 150 mph. Climbed from this altitude, single-engine rate of climb was 300 fpm. at 100 mph. indicated. Single-engine climb was continued to 14,250 ft., where it was trimmed out to hold its altitude using high blower for 41.5 ins. and 2,600 rpm. with outside air temperature of minus 5 degrees C. Single-engine air speed here was 130 mph.

Omni stations were then used to time the DC-3 over a triangular speed course marked by Dallas, Ft. Worth and Waco. This was flown both ways at 10,000 ft., gross weight estimated at 26,000 lbs., pulling 700 hp. at a setting of 31 ins. and 2,150 rpm. and with 180-mph. indicated air speed for a true air speed of 214 mph. at a fuel consumption of 110 gph. Ground speed for both runs averaged out to be 213 mph. from the following legs: (1) Dallas-Ft. Worth 180 mph.; (2) Ft. Worth-Waco, 223 mph.; (3) Waco-Dallas 214 mph.; (4) Dallas-Waco 206 mph.; (5) Waco-Ft. Worth 214 mph.; and (6) Ft. Worth-Dallas 240 mph.

Two views show Executive Aircraft Service installation of Miner speed cowling and Pan American wheel doors.

(Executive Aircraft Service Photos.)

NEWEST FLIVVER OF THE AIR is the Gyro-Copter developed by Bensen Aircraft of Raleigh, N. C., from its Model B-7 Gyro-Glider. It is powered by a 40-hp. 4-cylinder Nelson engine, cruises at 60 mph., weighs only 185 lbs. empty and is expected to sell for less than $2,000.

FRYE F-1 SAFARI

(Continued from page 37)

Additional costs include $10,000 for retractable landing gear. The standard passenger version provides seating for 45 passengers with 9 rows of 5 seats each. A custom variation with a "Vista Lounge" in the nose of the passenger cabin will be available at an additional cost of $10,000. The lounge will seat 9 persons.

Frye's figures for the Safari include the following:

Estimated Weight Breakdown

Item	Cargo lbs.	Passenger lbs.
Structure	14,366	14,437
Power Plant	6,244	6,244
Basic Systems and Equipment	1,755	1,915
Furnishings	281	2,306
Manufacturers Wt. Empty	22,646	24,902
Crew, Oil, etc.	830	960
Operating Wt. Empty	23,476	25,862
Payload and Fuel	13,524	11,138
Take-off Gross Wt.	37,000	37,000

Design Performance

Take-off Run, ft.	1,580
TO Over 50 ft., ft.	2,800
Rate of Climb, fpm.	860
Time to Climb to 8,000 ft., mins.	9.6
Svc. Clng., ft.	21,000
Cr. Spd., mph.	171
Approach Spd., mph.	81
Lndng. Spd., mph.	62
Landing Run, ft.	800
Lndng. Over 50 ft., ft.	1,700

Dimensions

Span, ft. ins.	109-6
Length, ft. ins.	75-10
Height, ft.	30

AUTHORIZED
Cessna
SERVICE

These Authorized Stations
Feature Flat-Rate Service

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Champ's Aviation, Inc.
Municipal Airport
El Paso and Lubbock, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
International Airport
and Clover Field Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport and Love Field
Dallas, Texas

Dixie Air Associates, Inc.
Municipal Airport
Memphis, Tennessee

Executive Aircraft Company
Municipal Airport
Kansas City, Missouri

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero, Inc.
Service Division
International Airport
San Antonio, Texas

Poelman Aircraft Co.
New Orleans Airport
New Orleans, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Memorial Airport
East Alton, Illinois

WestAir, Incorporated
Municipal Airport
Abilene, Texas

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

3 Big Reasons

Why Authorized Cessna Service is Best!

The facts, gained from many years of experience, prove that your Cessna is good for efficient, dependable performance over hundreds of hours of utilization per year.

Assure yourself of complete Cessna reliability and satisfaction by insisting on Authorized Cessna Service — our factory-approved facilities know your Cessna best and our factory-trained staffs specialize in factory methods, equipment and accessories.

Get the most out of your Cessna by taking advantage of the three big service features guaranteed by our factory-supervised Cessna Flat-Rate Program.

1 **You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all maintenance needs.**

2 **You get genuine Cessna parts and factory-trained workmanship.**

3 **You save money and time and we stand behind every job for your fullest satisfaction.**

New Airplane Joins Cessna Business Fl

MULTIPLE EXPOSURE SHOWS HOW CESSNA'S NEW PATENTED LAND-O-MATIC LANDING GEAR

Over 150 m.p.h. speed, "hush-that makes flying like driving

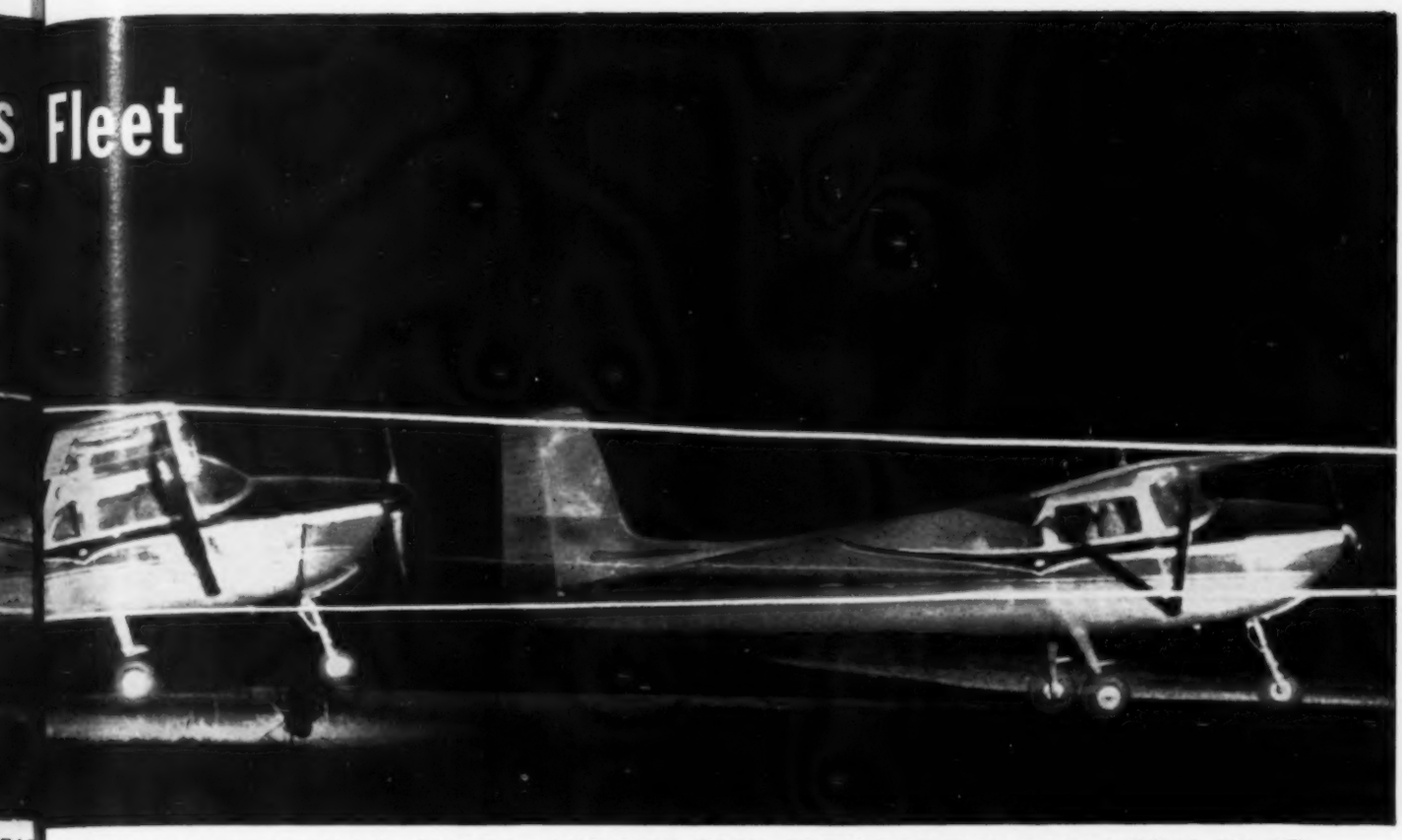
It's the latest and greatest in single-engine business airplanes. For no other can match the combination of speed, comfort and ease of flying which this new Cessna 182 offers!

Land-O-Matic makes the big difference . . . makes flying like driving. You drive straight down the runway and up in the air. No need to stall or "drop in" when you land—you drive right down. And it turns in a shorter radius . . . is easier to park than a car. You drive around on the ground!

You get this, plus all-round performance that measures up to airplanes costing thousands of dollars more—new "hush-flight" cabin quietness that makes long trips a pleasure—new luxury and style throughout. Plenty of room for four big people. Drive the 182 soon. Only $13,750 f.o.b. Wichita. See your Cessna dealer today (listed in the Yellow Pages of your phone book) or write to CESSNA AIRCRAFT CO., Dept. FM-6, Wichita, Kansas.

Inquire about Cessna lease plans

s Fleet



REVOLUTIONIZES FLYING, MAKES LANDINGS EASY, EVEN FOR THE OCCASIONAL PILOT

flight" comfort and the feature ... all in the new Cessna 182!

Cessna

5 GREAT CESSNAS — THE COMPLETE AIR FLEET FOR EVERY BUSINESS NEED

170 Lowest-priced all-metal airplane. New interiors, new two-tone striping, for '56. Proved by over 5,000 owners—cruises over 120 m.p.h. $8,295 f.o.b. Wichita.

172 With Land-O-Matic landing gear. Ideal for businessmen who want to learn to fly themselves. You simply drive it. Over 120 m.p.h. cruising. $8,750 f.o.b. Wichita.

180 Fast, 4-place business airplane. Top seller in over 150 m.p.h. class. New "hush-flight" features—2-tone striping. A great "float plane," too. $12,950 f.o.b. Wichita.

182 Greatest single-engine business plane. Land-O-Matic landing gear. Performance of airplanes costing much more. "Hush-flight" cabin. $13,750 f.o.b. Wichita.

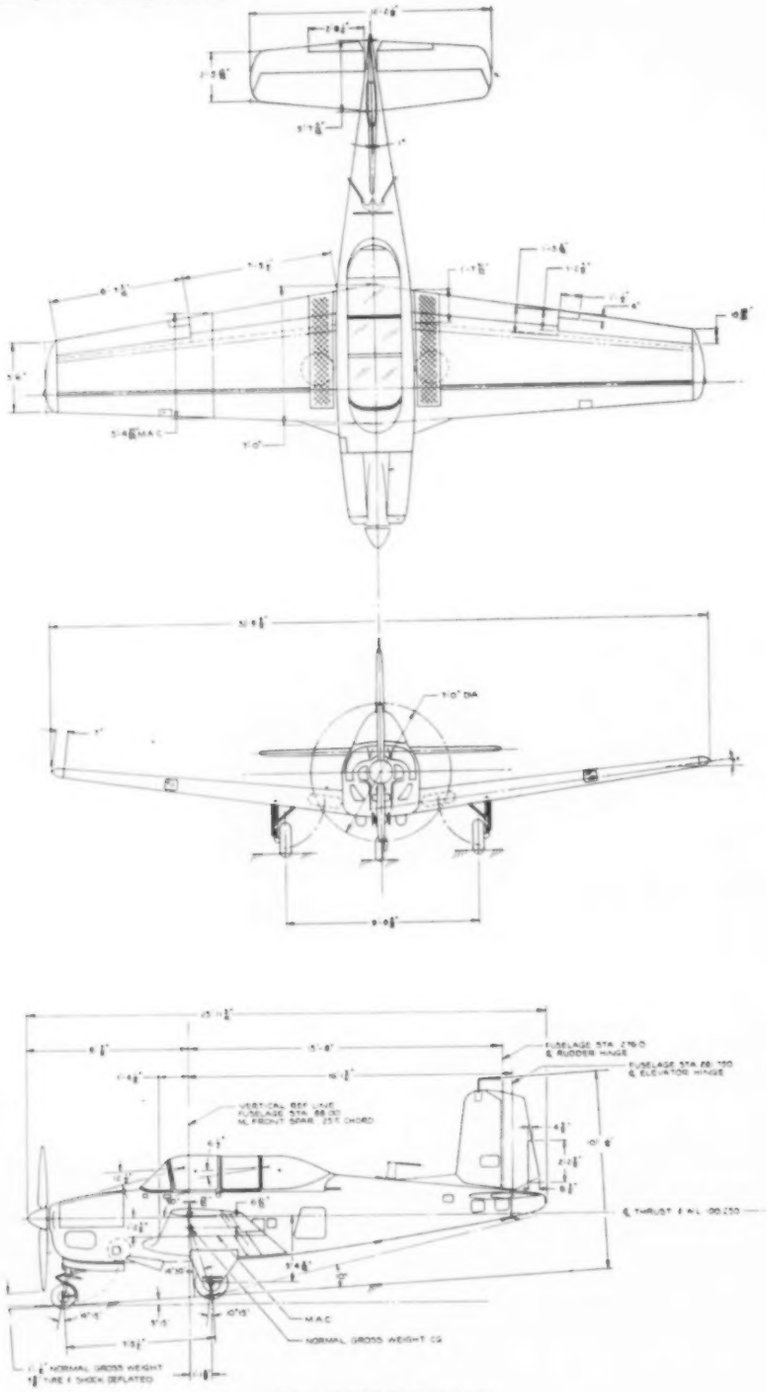
310 "Tomorrow's Twin Today"... years ahead in design, engineering. Safety proved by performance of more than 300 now in regular use. $54,950 f.o.b. Wichita.

Air Force and Navy Mentors Compared

	USAF T-34A	NAVY T-34B
Engine* . . . Both T-34A and T-34B are powered by 225-hp. Continental O-470 engine.		
Cruising Speed (60% power), mph.	173	170
High Speed, mph.	189	188
Maximum Permissible Diving Speed, mph.	280	280
Service Ceiling, ft.	20,000	19,500
Range (60% cruise power), miles	736	725
Gross Weight, lbs.	2,900	2,985
Empty Weight, lbs.	2,156	2,254
Useful Load, lbs.	744	731
Wing Loading (at gross weight), lbs. per sq. ft.	16.329	16.892
Rate of Climb (at sea level), fpm.	1,230	1,160

Load Factors: Both have 6.67G limit and 10G ultimate positive load factors and 3.33G limit and 4.5G ultimate negative load factors (based on 3,000-lb. gross weight).

*NOTE: Basic difference in power plants: Navy T-34B engine has carburetor equipped with automatic mixture control for altitude compensation. The USAF T-34A is equipped with a selector type fuel system; right and left wings tanks are used alternately. The Navy T-34B is equipped with a single sump fuel system; both wing tanks feed simultaneously into a single sump.



Navy T-34B Dimensions

JUST AMONG OURSELVES

(Continued from page 17)

force behind the training program o[u]tside the CAA. It is up to every s[e]ment of the aviation industry to p[u]this matter through Congress witho[u]further delay.

It is noteworthy that the Airl[i]Pilots Association recently went [o]record for higher pay and better wor[k]ing conditions for the controllers. B[u]this is a long, drawn out process, in[-]volving the Civil Service, re-classifica[-]tion, tons of paper work, meetings and red tape which could consume years — an almost hopeless proposition insofar as immediate relief is concerned.

The solution seems to us to be action in Congress, backed up by appropriations to the CAA for training qualified men not only as replacements for those departed but also for additional personnel now needed.

Only the Beginning

A GROUP of irate citizens went to court in Dallas last month seeking an injunction to shut down Southwest Airmotive's jet engine test facilities just east of Amon Carter Field and to seek in a companion suit some $600,000 in damages.

The case received considerable publicity in view of the fact that one of the plaintiffs in the case was a vice president of a major airline that has jet transports on order!

After several days of testimony, an out-of-court agreement was reached which, if approved by the Court, might well become in the the jet age as famous as Causby v. U. S., which in 1940 involved basic fundamentals of air space.

To our knowledge this is the first civil case that sets down specific noise levels in decibel count. Under the agreement Southwest Airmotive will reduce the noise level (at 50 feet from the stacks) from 130-140 decibels to a count of 105 decibels, plus or minus 3. The company will have 14 weeks to engineer and incorporate noise reduction equipment at the installation.

Other agreements include specific operating hours. Southwest can operate during a 12-hour daytime period, Mondays through Fridays, and on one Saturday a month for a 12-hour period. If an emergency arises whereby they need to operate at other times in order to meet contract commitments to the Air Force, company representatives must meet with a citizens' committee to approve or not approve. If the committee does not consent the decision will be made by the court.

Other interesting sidelights of the case included testimony by the United

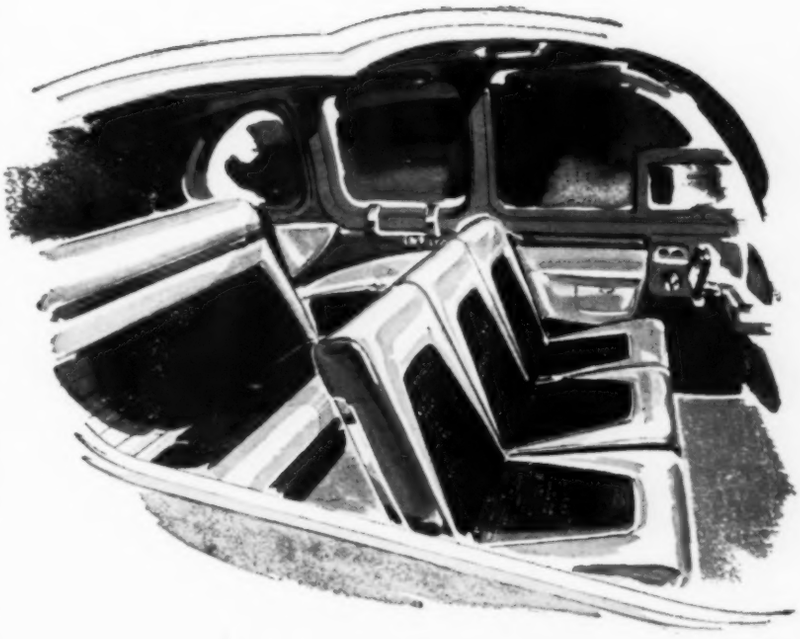
Beechcraft

TWIN-BONANZA FOR '56

The beauty, the power, the speed, the luxury of tomorrow's flying today — that's the Beechcraft Twin-Bonanza for 1956. You'll marvel at the smooth quiet of super-soundproofed flight, the amazing, relaxing comfort of the Twin-Bonanza.

When you step into the Beechcraft class, you've entered an entirely new way of traveling — no waiting, no wondering, no wandering. Business travel-problems are settled on schedules of your own choosing. In the *Twin-Bonanza* you have an airplane *designed* for comfort, efficiency, and safety.

Take a look at the new Beechcraft Twin-Bonanza for '56 — it's the safer, surer, more dependable way for the modern executive traveler. The new Beechcraft Model D50 Twin-Bonanza cruises at 203 mph at 70 per cent power and at full gross load; has a maximum range of 1650 miles with auxiliary fuel; carries six people. Millions of in-flight miles have proved its rugged dependability.



*Through a printing bust, this space last month pictured a D50 Twin-Bonanza with a G35 Bonanza sales message. Herewith is the Twin-Bonanza ad as it should have correctly appeared.

The J. D. Reed Company of Houston, Texas, would welcome the opportunity of showing you how and why owning a Beechcraft is a profitable proposition. We will be glad to furnish you complete facts and figures about our attractive new leasing and financing plans. You will always find the J. D. Reed Company a good place to do business.

J. D. REED CO. INC.
SALES SERVICE
Beechcraft
DISTRIBUTOR
MUNICIPAL AIRPORT
HOUSTON, TEXAS

PUBLIC OPENING OF ITS EXPANDED BEECHCRAFT AND PIPER SALES AND SERVICE facilities attracted over 7,000 visitors at Abilene, Texas, to Abilene Aviation Company's display of new business planes. One of the attractively displayed Beechcraft Twin-Bonanzas is pictured. Jack Hughes of Abilene Aviation said two visitors bought a new Tri-Pacer and arranged for instruction. Earl Outland, former operator at Mt. Vernon, Ill., recently acquired half interest in Hughes' Beech and Piper dealership.

States government as an "expression o interest." Since Southwest Airmotiv is the only fixed-base operator alread equipped to perform the type of wor required in the repair and overhau and testing of J-33-A35 jet engine and the only company under contrac with the government to perform th type of work involved, the Air Forc went on record that if performanc under the contract was interfered wit "it will result in many aircraft of th military services being grounded and out of activity . . . thereby seriously impeding, hampering and curtailing the national defense effort of the U.S."

No doubt this testimony by the U.S. attorney praying that the injunction be denied had considerable effect on the attitude of the complaining

(Continued on page 66)

The Biggest shaft in Texas . . .
The San Jacinto Monument, the tallest shaft in Texas; in fact in the United States . . . your landmark just 30 miles east of ANDRAU AIRPARK.
The Biggest welcome in Texas
The biggest Texas welcome is at the biggest privately owner commercial airport in Texas. Set down at Andrau Airpark for comfort, convenience and real Texas-style hospitality.
CITY OF HOUSTON
ANDRAU RADIO 269 AAP
• Expanded Cafeteria facilities
• 80-90-100 octane gasoline
• 2 lighted runways—4714'
• Low Freq. Homing Beacon 269 kc AAP
• 15 miles Due West of Houston
• 24 hour operation
• Transportation to Houston and Shamrock Hotel
Avis Rent Cars On Field
Bob
owner-manager
4,714
3240
1850
3000'
Andrau Airpark

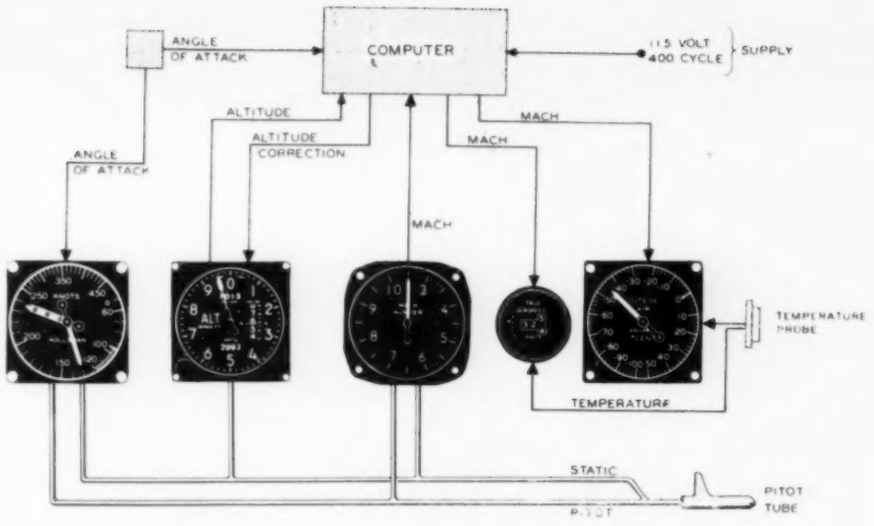
TEMCO JET TRAINER

(Continued from page 32)

fitted with the wing root. The small jet engine is mounted behind the rear seat and has a short tail-pipe, the empennage being arranged as a slender tail boom extending back from and above the tail-pipe.

The Temco 51 looks like a miniature fighter and has been stressed structurally for an ultimate load factor of 11.25 G's. Its heavy landing gear is stressed for an ultimate sinking speed of 20.4 ft. per sec. to absorb student errors in landing practice.

With a wing area of 150 sq. ft., it has a span of 29.83 ft., length of 30.6 ft. and height of 10.82 ft. Normal fuel load is 119 gals. for 1.5-hr. endurance at sea level. Extra range is provided by bladder fuel cells in the leading edge of the wing center section and in the outer wing panels without the use of auxiliary fuel tanks. Fuel tanks are interconnected to eliminate tank selection by students. The



KOLLSMAN INTEGRATED FLIGHT INSTRUMENT SYSTEM for the first time gives the pilot interrelated flight data for greater precision in cruise control and navigation dead reckoning and increased altimeter accuracy. Conventional pressure instruments are connected electrically to each other and to a computer. In an electrical failure, pressure readings are not interrupted. Left to right in the illustration are air speed, sensitive altimeter, mach number, true air speed and outside air temperature indicators. The electrical connection and use of the computer provide information not otherwise available in high-performance transports. Douglas has accepted it for the DC-8.

Everything for Executive

DC-3 Inspections Maintenance

Lodestar Overhaul Conversions

D18S Radios Engines Sales Parts

C-47s Available

1,086 to 6,402 hours total time. Complete disassembly, with 8,000 hour overhaul, NTSO engines, new ship guarantee. With or without conversion.

Super-92 DC-3 for April delivery

with your choice of engines, Bendix or Collins radio, complete disassembly with 8,000 hour overhaul, new ship guarantee, custom interior, big cabin and picture windows, 200 mph.

Custom 18—Modernize your Model 18

Make your travels pleasant and refreshing, as you relax in a roomier, more convenient cockpit, or spread out luxuriously in comfortable, adjustable reclining chairs in the spacious new modern interior. Plenty of big windows for easy vision, and an ingeniously fitted snack bar for in-flight meals or tidbits.

RADAR Bendix C-Band R.C.A. X-Band

Thunderstorm Avoidance

Fewer cancellations and detours, with shorter, smoother flight paths, and less crew and passenger fatigue.
Simpler, lighter, cheaper, safer than pressurization. Now you can follow lower, easier operating altitudes by going around or between storms instead of over or through them.

RADOMES—one piece laminated fiberglas, fully tested with more installed on executive DC-3 than any other kind. No drafts, no noise, for more comfortable cockpit.

WAVE GUIDES

Inc. of **ST. LOUIS** Lambert Field

REMMERT-WERNER

Inc. of **TOLEDO** Express Airport

design and structure permit growth of the Model 51 as jet engines of greater thrust become available.

Service ceiling is 35,000 ft. and the cruising speed is 215 knots at 25,000 ft., with a sea level rate of climb of 1,900 feet per minute. Unpressurized, the Model 51 is equipped with liquid-oxygen supply and hydraulically-operated speed brakes. All primary flight controls utilize mechanical push-rod linkage, trim tabs are electrically operated and landing gear is hydraulically actuated. Wide tread of the tricycle landing gear provides ease of ground handling and tires and brakes are oversize.

Aerodynamically, excellent aileron control is maintained well into a stall — the wing combines three different airfoil sections.

The design features ease of maintenance. Its engine is surrounded by secondary structure and can be exposed for normal maintenance in 10 seconds or completely changed from removal to run-up in 20 mins. Outer wing panels and the aft section are readily removable and there are 22 different access panels and a large nose section access door. An engine dolly doubles as a work stand — it permits raising and lowering of the engine for a power plant change with the airplane remaining on its landing gear. Wing tips, stabilizer tips, tail cone and engine air intake ducts are of molded fiberglass construction. Honeycomb material is used for landing gear doors and wing panels.

After a thorough flight test program, the Model 51 will be demonstrated to military services, McCulloch said. Stockholders were to view the jet trainer at their annual business meeting early in April. ★ ★ ★

FLIGHT CHECKED!

Lightweight **FLITE-TRONICS MB-3 Marker Beacon Receivers** specified by Lockheed Aircraft Corporation for their new Twin Bonanzas are giving exceptionally dependable, accurate 3-light and audio 75 mc marker signal indications!

You'll be glad to know, too, that the MB-3 is the most economical visual-aural, 3-light marker beacon receiver available—fully CAA certificated—flying with more new executive aircraft than any other make!

"Fish" Salmon, Lockheed Engineering Chief Test Pilot, knows the value of equipment dependability—it's his job!

Write for illustrated free folder on the MB-3 Marker Beacon Receiver TODAY!

FLITE-TRONICS, inc.

Manufacturer of CA-1 Cockpit Audio Amplifier, CA-20 Cabin Audio Amplifier, DS-5 Cockpit Audio Isolation System

3303 BURTON AVENUE · BURBANK, CALIFORNIA

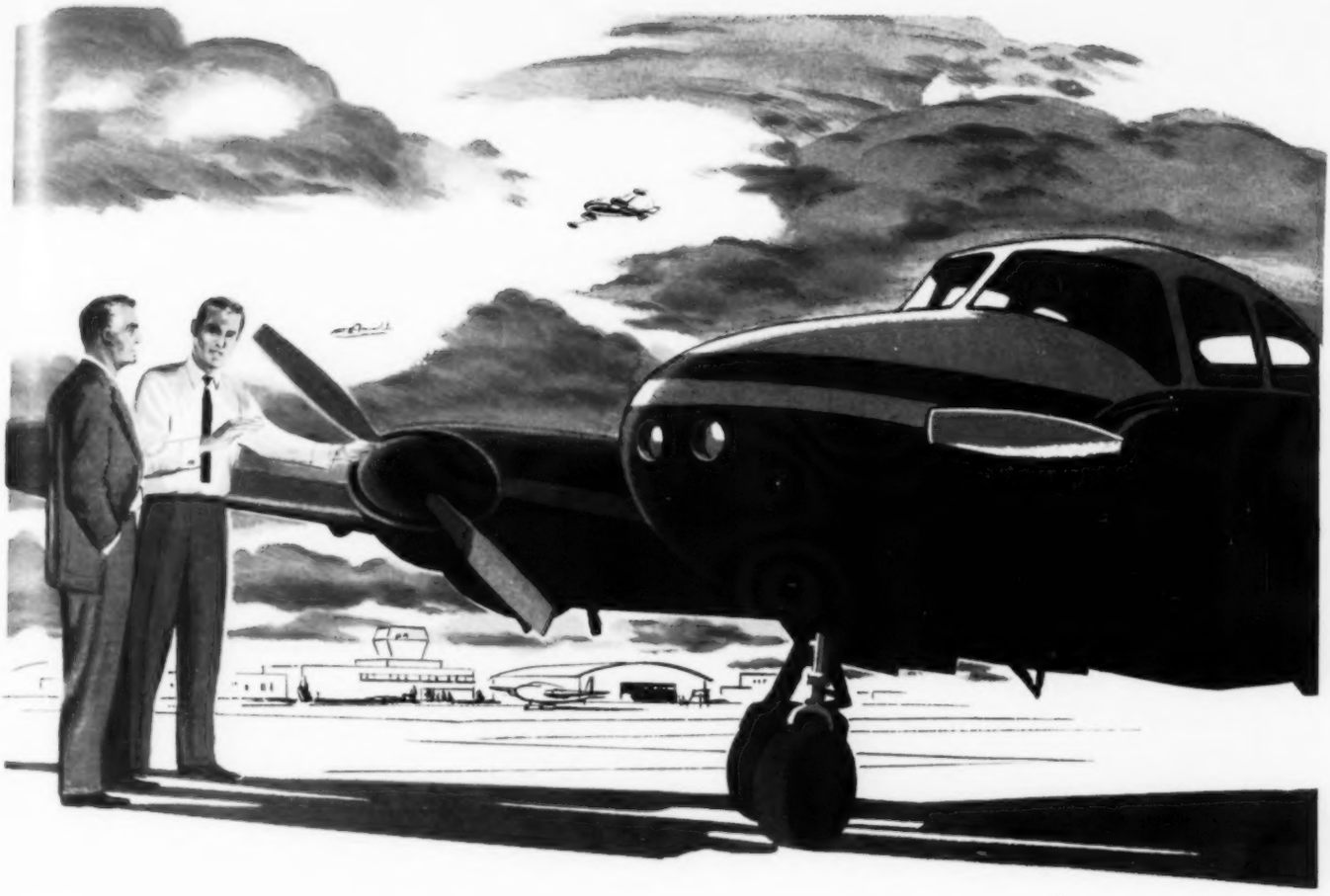
MORE RADIO, LESS SPACE

(Continued from page 40)

packaged in short ¾ ATR; 137A-1 antenna, flush-mounted ferrite loop, 6 lbs.; 614L control unit, 1.7 lbs.; 332C-1 RMI, 2 lbs.); 860D-1 — DME ½ ATR with separate power supply and synchro output unit, basic DME weight, 28 lbs.; 341B-1 — DME power supply and synchro output function, short ⅜ ATR, combined weight 9 lbs.; NC-102 — navigation computer and DME auxiliary unit rho/theta type for VOR and DME, combines functions of 341B-1 with course line computor, short ½ ATR, 17 lbs.; 621A-1 — ATC transponder; ½ ATR, 23 lbs.; 346A-1 — interphone amplifier, completely transistorized, short ¼ ATR, 6.5 lbs. and includes optional 3-watt speaker amplifier; 456A-1 — Selcal, for selective calling, short ¼ ATR, 8 lbs.; MC-102 — gyro stabilized magnetic compass, employing 332F-2 directional gyro with integral amplifier and 323A-1 flux detector, 9.5 lbs.; FD-105 — flight director system, transistorized version of Collins Integrated Flight System, short ¼ ATR, 8 lbs., furnished with associated vertical gyro, course indicator and approach horizon; AP-101 — tubeless autopilot system, employing magnetic amplifiers and transistors, completely modularized, includes integrated flight system; WP-101 — weather radar system with printed wiring, magnetic amplifiers, 40 tubes for single indicator system, a new load isolator (magnetron protector) and modular construction, total system weight 131.3 lbs.

Collins says newly-designed frequency selectors, featuring size reduction but larger numbers for more readability, and navigational instruments will augment Collins airborne system installations. Among new instruments to be offered is a combination RMI-distance indicator and a new rho-theta waypoint selector.

★ ★ ★



An Unusual Sales Opportunity

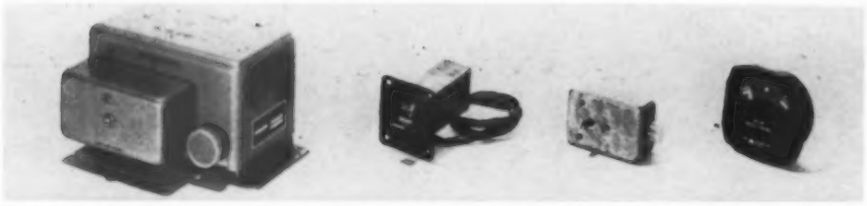
- **Temco's new executive type aircraft — the Riley Twin — offers the busy man a quick, convenient means of meeting tight schedules comfortably and with time to spare.**
- **It offers forward-looking distributors a profitable sales opportunity . . . and immediate delivery.**

With a cruising speed of 170 mph and a range of 1,200 miles, the Riley Twin converts non-productive *travel* time into more productive *business* time. It is easily handled, fully instrumented, and cuts to a minimum expensive delays and postponements "on account of the weather."

Distributorships are available in many areas. For further information about this excellent opportunity write . . .

TEMCO AIRCRAFT CORPORATION

P. O. Box 6191 Dallas, Texas



Here is Safe Flight speed control group, from left to right: Lift computer, wing-lift transducer, flap potentiometer and speed control indicator.

Autopower for Instrument Landings

Safe Flight Instrument Corp., has marketed a new automatic power control system which is an addition to and extension of its "speed control" system introduced several years ago. The new autopower system makes possible maximum efficiency landings, especially instrument landings. Changes in attitude of the airplane, flaps, landing gear, weight and all other variables which affect lift are sensed before speed changes take effect and are compensated for by automatic throttle adjustment of engine power. With the new system, an airplane can be made to climb, glide or maintain level flight as required — with automatic adjustment of the required engine power.

The Autopower group, left to right below, consists of lift coupler, throttle servo, control head, release button, a second throttle servo, and servo amplifier.

AIR REPORT

(Continued from page 14)

equalled, with 553 million airplane-miles the total revenue airplane-miles flown by domestic scheduled airlines for the year. Of 61,290 general aviation aircraft flown during 1954 (compared to 1,400 airliners), 18,570 were engaged primarily in business flying, not for hire, 9,750 being owned by business concerns, 8,610 by individuals and the balance by governmental agencies. Another 29,350 aircraft were used for pleasure only or for a combination of business and pleasure, and 4,750 other planes were used for instructional purposes and logging a small gain in hours flown over 1953, the first increase in instructional flying recorded since 1947. In spraying, dusting, seeding and other aerial application flying, 4,210 aircraft logged 668,000 hrs. of flying, dispensing some 628 million pounds of seed and dry chemicals and 91 million gallons of liquid chemicals. New trends reflected in the booklet include a 12 per cent increase in the number of multi-engine aircraft and a gain of spraying over dusting. Business aircraft flown by hired professional pilots numbered 3,490 and most of them were multi-engine craft.

AUTHORITY TO CARRY AIR MAIL AND AIR EXPRESS has been given by CAB to cargo airlines along with 5-year certificate renewal for cargo carrying. Slick Airways estimates mail and express will be a tremendous boon to the certificated air cargo business, believing it will produce twice the revenue provided by air freight and non-priority mail.

NEW JET ENGINE ORDERS TOTALLING $35 MILLION are in process for the Wright Aeronautical Division of Curtiss-Wright, according to Roy T. Hurley, chairman.

FIRST THROTTLEABLE ROCKET ENGINE, which can be throttled up and down by the pilot, has been developed and built by Curtiss-Wright's Propeller Division for the Bell X-2 supersonic research plane designed to penetrate the heat barrier. The engine packs as much power as a Navy cruiser. Curtiss-Wright is also producing supersonic ram-jet engines for guided missiles.

SHIPMENT OF TWO FIBERGLASS TAYLORCRAFT LIGHTPLANES to Argentina, announced by B. J. Mauro, Taylorcraft, Inc., president, indicates the new Argentine government has dropped some of the barriers to the importation of American light aircraft. The two Taylorcraft Ranch Wagons, with spare parts, were valued at over $50,000. The sale was to Casa Iturrat, S. A., Buenos Aires, and was handled by the Imperial Export Co., 44 Whitehall St., New York.

AN AMERICAN BUSINESS PLANE PILOT can win a coveted French decoration, the Grand Cordon de l'Ordre de la Confrerie des Sacavins, which until now has been given only to ambassadors and government officials of similar rank, by participating in early June, 1956, in an international air rally at Angers, France, sponsored for the last ten years by the Aero Club de l'Ouest de la France. The participant, however, would have to fly his plane from America to Angers. The rally lasts two days and the pilot's expenses for 48 hrs. will be paid by the club. Interested persons may obtain further information from Jacques Mercier-Cointreau, 79 East 79th St., New York 21, N. Y., or from the Aero Club de l'Ouest de la France, 14 rue Paul Bert, Angers (Maine &

Resort Motel for White Rock Airport

Business fliers stopping in Dallas now have available, adjacent to White Rock Airport, a resort, the deluxe new Lido Motel Courts (left) with swimming pool, 100 rooms, restaurant, private dining rooms, private club and air-conditioned station wagon service. B. L. Kirkpatrick, a pilot and executive officer of the White Rock CAP squadron, is manager, and promises special attention to the needs of pilots and their passengers visiting the Lido Motel Courts, whether for a swim, a meal or a guest room or suite. White Rock Airport has a 2,500-ft. North-South runway.

STAIRWAY FOR TWIN-BONANZA is the newest factory improvement for the popular Beech Model 50 twin. The electrically-operated steps are automatic, retracting as soon as the right engine is started. A special electrical circuit, connecting the stairway motor with the right-engine fuel system and landing gear, prevents its accidental extension in flight. It retracts into the fuselage and is fully enclosed. A special lock-type switch enables it to be operated from the ground. When a key is turned in the lock, the stairway retracts to prevent unauthorized persons from entering the airplane. The same key will extend it for boarding. A light illuminates the stairs for night use. The handsome model on the stair is Pop Forney, long-time Beech Aircraft Corporation official greeter and friend of thousands of visitors to Wichita.

—(Beech Photo.)

Loire), France. Mr. Cointreau is a former member of the club and has been asked to locate an American participant.

FIRST FLIGHT OF THE GIANT DOUGLAS C-133A TURBOPROP TRANSPORT for the Air Force is scheduled for May. At a 255,000-lb. gross weight, it can carry a useful load of 145,583 lbs., which is considerably more than its empty weight of 109,417 lbs. It will carry a 25-ton payload of supplies nonstop for over 4,000 miles, or a 50-ton payload of supplies up to 1,000 miles. Powered by four Pratt & Whitney T34 turboprop engines, the mammoth air freighter has a span of 180 ft. and is 153 ft. long. Two C-133's can transport as much cargo in the same time interval as one Liberty ship or 5 C-124 Globemasters.

READING AVIATION'S 7th ANNUAL MAINTENANCE AND OPERATIONS MEETING for business planes has been scheduled for June 2 at Reading, Pa., with cash awards to business plane owners in furtherance of highest standards of excellence in industrial, executive and private aircraft. Sime Bertolet, president, said cash awards to aircraft in four classes and four categories will be as follows: Single-engine, twin-engine under 5,000 lbs., multi-engine 5,000 to 12,500 lbs. and multi-engine over 12,500 lbs., with awards range from $100 to $600 each for the best interior, best exterior, best equipped and best of class. Round-table discussions will feature operational problems peculiar to light twins, discussion by airways traffic control personnel of high-density traffic problems, electronic system requirements and film showings covering electronics and radar. The city of Reading will be host at a luncheon and leading aircraft and equipment manufacturers will have displays of 1956 models. George Haddaway of FLIGHT MAGAZINE and the National Pilots Association will be master of ceremonies. Over 500 airplanes and 1,500 owners and pilots are expected. The contest and meeting are open to any aircraft or pilot but participants must have reservations, which can be obtained by writing Sime Bertolet, Reading Aviation Service, Municipal Airport, Reading, Pa.

SURPLUS SALE OF 347 T-6 TRAINERS within the next several months has been announced by Maj. Gen. F. J. Dau, director of supply for the Air Materiel Command at Wright-Patterson Air Force Base. Invitation to Bid No. 41-608-s-56-41 for the first sale has been issued and bids on 87 of the trainers will be opened April 18. Dates have not been announced for three other sales, the first two offering 87 and the third 86 airplanes.

NOW!
BRANIFF'S
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Every branch of the Aviation Industry will focus its attention on this significant presentation. Here, then, is the opportune place to be represented with your advertising sales message. The JUNE 1956 issue of FLIGHT MAGAZINE is the **ONLY MEDIUM** that can offer 100% penetration of this lucrative expanding market.

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FLIGHT MAGAZINE

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Sales will be held at Kelly Air Force Base, San Antonio. All inquiries should be directed to the Property Disposal Officer, Kelly Air Force Base, San Antonio, Texas.

A NEW LOW-COST SILVER ZINC BATTERY for rocket application offers high discharge capabilities, extremely flat discharge voltage characteristics and can be assembled to meet the voltage requirements of any application. A 28-volt battery designed for continuous discharge at 5 amperes, for example, would be about the size of a package of king-size cigarets and would weigh only 7 ounces, according to American Machine & Foundry Co., which exhibited the new battery in Dallas at the American Institute of Electrical Engineers show. It was developed by AMF's engineering laboratories at Raleigh, N. C., and produced by the company's Micro-Pak Power Division, Colorado Springs.

BELL AIRCRAFT PRODUCED AND SOLD 20 COMMERCIAL HELICOPTERS during the month of March for a new commercial helicopter sales record, the industry's best previous month for a manufacturer being 12 commercial helicopters, also Bells, built and sold in one month. The 20th delivery went to Hawk Helicopters of Ft. Worth and Corpus Christi, Texas. The month's sales included 5 new Bells to Aero Boeing of Seattle, 3 to the Spanish Navy, 2 to Petroleum Helicopters, New Orleans, and one each to Pacific Western Airlines, Vancouver; Helix Air Transports, Dallas; Skymotive, Chicago; Colorado Interstate Gas, Kansas; Frederick Matthaei, Detroit; Fenwick, France; French Army, Algeria; Smith-Pace Pipeline Construction, West Virginia and Associated Helicopters, Alberta, Canada.

TWO MIAMI FIRMS HAVE RECEIVED TRANSPORT CATEGORY CERTIFICATION FOR THEIR MODIFICATION OF THE CURTISS C-46 which will permit its use on scheduled passenger airlines. Air Carrier Engineering Service and L. B. Smith Aircraft Corp., obtained the certificate from Second Region CAA officials at Ft. Worth following more than 2 years of work on certification supervised by Sam Tao, chief engineer for ACES, and Edwin L. Thomas, LBS chief engineer. A gross take-off weight of 47,650 lbs. was authorized for scheduled passenger service. Herrol Bellomy, executive vice president of LBS, said the certificate makes the modified C-46 the "logical successor for supplemental and small air carriers to replace present high-density DC-3 operation — carriers will now be able to carry 45 to 55 passengers at higher speeds and with only a small proportionate increase in operational costs."

FIRST CONVAIR 440 METROPOLITAN has been placed in operation by Continental Air Lines. Passengers are finding its new exhaust mufflers and double-windows have

TAKE-OFFS AND LANDINGS WITHIN 1,200 FT. OF DISTANCE were demonstrated recently by the Cessna T-37 twin-jet Air Force trainer. The Cessna is in production at Wichita. —(Cessna Photo.)

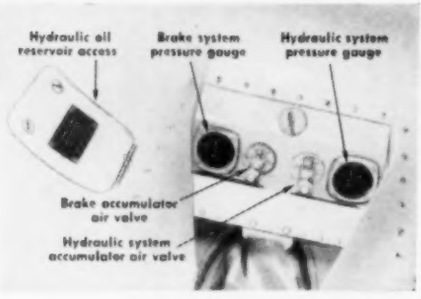
Royal
AMPHIBIAN NEWS

Notes on America's outstanding utility amphibian for business flying and charter service operation

AMPHIBIAN DESIGN OF ROYAL GULL ELIMINATES WHEEL AND BRAKE TROUBLES

LANDING GEAR RIDES HIGH AND DRY — A feature typifying the Gull's highly functional design is the way the wheels are almost fully recessed, well above the waterline — even when the plane is fully loaded. And they're clear of all but minor spray as hull configuration precludes "porpoising." Positive locking (both up and down) landing gear has both mechanical and electrical position indicators for added safety.

SPECIALLY-DESIGNED BRAKES, SEALED WHEEL BEARINGS — Hydraulic-actuated brakes (standard for both left and right hand pilot seats) won't slip, grab or chatter — even when wet! Wheel bearings are sealed against moisture . . . need only normal lubrication and maintenance checks. Note sturdy construction of entire landing gear assembly. Tires are standard U. S. sizes.


Hydraulic oil reservoir access
Brake system pressure gauge
Hydraulic system pressure gauge
Brake accumulator air valve
Hydraulic system accumulator air valve

EASY OUTSIDE ACCESS TO ACCUMULATORS — Brake and main hydraulic system accumulators plus oil reservoir are charged externally, have direct reading gauges, are located in the wheel well. Make positive pre-flight checking easy!

These are only a few of the many outstanding operating and maintenance simplifying features. To get the complete story on why the Royal Gull is truly America's most modern and efficient 5 place amphibian for executive or charter service, fill out and mail the coupon at right.

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Please send me the 8-page illustrated Bulletin on the new Royal Gull.

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City.....Zone.....State.....

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White Rock Airport

Dallas, Texas

The new Temco RILEY TWIN cruises 170-180 mph.; has a range over 1,200 miles. Full-feathering propellers, color-harmony interiors by Horton and Horton, two baggage compartments and any other advance appointments make the Temco RILEY TWIN the best light twin aircraft buy.

Now! You can enjoy twin engine safety and performance at low cost! We invite you to arrange for a demonstration of the remarkable new Temco RILEY TWIN.

You can look to White Rock Aviation, Inc., with confidence for your every need in aviation. We offer service and maintenance on all type aircraft.

White Rock Aviation, Inc., also BUYS, SELLS and TRADES all makes and types of used aircraft.

FLYERS RELAX AT THE LIDO

Lido Hotel Courts adjacent to White Rock Airport offer you complete one-stop accommodations . . . Upon landing you will be met by LIDO'S air-conditioned station wagon . . . For your convenience and comfort 84 luxurious suites and rooms plus 14 cabana rooms surround a beautifully landscaped exotic swimming pool with access to dining room, coffee shop, and club room. Accommodations for sales meetings, private luncheons, and dinners.

LIDO'S . . . for the ultimate in modern luxury at reasonable rates. Nothing has been overlooked for your convenience and comfort . . .

Only Hotel Courts featuring Helicopter landing facilities.

LIDO HOTEL COURTS

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Telephone DA 7-4575

made it probably quieter than any other piston-engine transport now in airline use.

OVER 78,200 HOURS OF FLYING were logged during 1955 by Civil Air Patrol's volunteer airmen on six types of operational missions including search and rescue for lost aircraft, relief for flood and disaster victims and other types of missions in behalf of air power and public welfare. Current CAP membership stands at 89,999 — of whom 39,452 are adult or senior members and 50,547 cadet members. Over 14,000 are women. CAP operates the largest communications network of its kind providing a command link for nationwide relief activities and its number of fixed, mobile and airborne radio facilities increased from 9,188 in 1954 to 11,047 at the end of 1955.

NEW WORLD'S SPEED RECORD OF 1,132 MPH. was established last month by the British Fairey Delta 2 fighter, powered by a Rolls-Royce Avon jet using afterburner on two runs of 1,117 mph. and 1,147 mph. at an altitude of 7.25 miles over a measured course. The pilot was Peter Twiss.

NEW HELICOPTER COUNCIL officers of the Aircraft Industries Association are Don Berlin of Vertol (Piasecki Helicopter Corp.), chairman and J. E. Leonard of Cessna Aircraft Co., vice chairman.

OVER 106 FOUR-ENGINE DE HAVILLAND HERONS have been ordered with 93 of the 15-17-seat airliners and executive versions having been delivered by the British manufacturer. The Heron is powered by four 250-hp. DH Gipsy Queen 30 Mark 2 engines and has a 183-mph. cruising speed at 8,000 ft. with 10-hr. range.

NAVY XRON-1 ROTORCYCLE, with coaxial rotors, is pictured in hovering flight during initial flight trials by the manufacturer, Gyrodyne Co. of America, Long Island, N. Y. The single-seater was developed for the Bureau of Aeronautics as a vehicle for escape, evasion and small-unit tactical maneuvers. It weighs less than 500 lbs. loaded, is collapsible for transport as a folded package and mounts engines of 40 to 75 hp. Pilot here is Jim Ryan, Gyrodyne test pilot.

TWIN-ENGINE CESSNA 310 PRODUCTION is averaging 1 airplane a day and better at Wichita. This view of the Model 310 production line shows 8 of the fast twins in various stages of completion. Forty-three Model 310's were delivered during January and February, 1956 —(Cessna Photo.)

CESSNA SALES MEETING

(Continued from page 30)

SWITZERLAND: Flugzueghandels A. G., Zurich; MADAGASCAR: Henri Fraise Fils E. Cie., Tananarive; PAKISTAN: International Suppliers, Ltd., Karachi; EGYPT: William F. Judd, Cairo; HAWAII: Murrayair, Ltd., Honolulu; JAPAN: Nozaki & Co., Ltd., Tokyo; PHILIPPINES: Philippine Air Transport Service Co., Manila; NEW ZEALAND: Rural Aviation, Ltd., New Plymouth.

NORWAY: Thor Solberg Aviation Co., Oslo; SOUTH VIET-NAM: Denis Freres D'Indochine, Saigon; THAILAND: Thai Technical Services, Bangkok.

NEW AIR-DRIVEN GYRO DIRECTION INDICATOR, now finding increasing use in business planes, features a vertical card with an adjustable course pointer which is set by pressing and turning to the desired heading. Distributed exclusively by Allied Instrument Manufacturing Corp., Houston, Texas, for Smith's Aircraft Instruments, Ltd., it is the Model 2-DG and weighs only 2 lbs. 15 oz. It is virtually spill-proof and has mounting centers identical to standard gyros in use.

Twin Beech owners:

Add the safety and convenience of

Takes only 4 days to install

STEP-DOOR CONVERSION

Improve and modernize your plane with a CAA approved step-door. Quicker, easier and safer to enter and leave your plane. Allows more room, eliminates space-taking swing-back door and auxiliary ladder. Leather upholstery to blend with plane interior. Folds up easily, shuts tightly. Heavy duty door lock, with separate safety catch. Kits available for field installation.

Write or call for more information

THE OHIO AVIATION CO.
Dayton Municipal Airport,
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TOUGH, DURABLE WAX COATING DESIGNED SPECIFICALLY FOR AIRCRAFT FINISHES

WINGWAX
Protective Coating

$2.75

includes: one pint of Wingwax and one pint of Wingwax* pre-wax cleaner. Covers 450 sq. ft.*

Wingwax, the easy-to-apply protective wax, won't peel, crack, chip or discolor!*

**U.S. Patent No. 2596829*

Keep your plane looking like new with wonderful Wingwax*! Just wipe or spray on cleaned surfaces and buff before it dries. Wingwax* resists corrosion . . . cuts maintenance costs.

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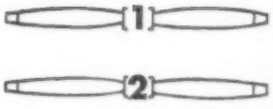
have been precision-built for Personal and Business Aircraft

There are 2 good reasons why McCauley has been able to manufacture and sell more than 50,000 Met-L-Prop and Met-L-Matic forged aluminum propellers in the past 10 years.



Superior performance and long life. The advantages of a McCauley propeller cannot be equalled.

Prompt Service. Orders are quickly filled and repair work is handled immediately.

You're invited to *improve* the performance of your aircraft with the addition of a McCauley propeller. Available at nearly every airport in the world.

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"World's largest manufacturer of metal propellers for personal and business aircraft."

Executive DC-3's, Lockheed Lodestars and commercial airliners brilliantly custom-individualized by CHARLES BUTLER ASSOCIATES, famed stylists and design consultants and L. B. Smith Aircraft Corp.

FINEST *Interiors* FOR EXECUTIVE AIRCRAFT

Each aircraft interior is designed exclusively to customer's specifications . . . and is the highest professional expression of modern taste and requirements.

L. B. Smith AIRCRAFT CORPORATION

INTERNATIONAL AIRPORT, MIAMI 48, FLORIDA

PRESSURIZED CESSNA

(Continued from page 31)

power is said to be 7.25 hrs.

Cabin pressurization is provided by an AiResearch turbine auxiliary power unit installed in the fuselage behind the rear pressure bulkhead. This unit also provides cabin heating and air-conditioning. At 18,000-ft. altitude, cabin pressure altitude is 8,000 ft. This unit has been installed and operated in numerous ground tests.

Cessna and Continental Motors have coordinated exhaustive testing of the GSO-526 engine, substantiating endurance, propeller and engine vibration data and general reliability.

The Model 620 will be certificated to comply with Civil Air Regulations Part 0.4b transport category requirements. Production planning for it will be in progress during flight test, with Cessna continuing to study the market for it. Plans regarding quantity production await test completion.

Design specifications and performance have not been changed since originally announced, it was reported at Cessna. Any changes which might be made will not be announced until after flight testing, it was explained. Here are the figures which have been announced for the 620:

Take-off Gr. Wt., lbs.	13,650
Lndng. Gr. Wt., lbs.	13,000
Max. Spd., 15,000 ft., mph.	269
Cr. Spd., 70% hp., 18,000 ft., mph.	235
Max. R/C., fpm.	1,600
TO over 50 ft., ft.	1,800
Lndng. over 50 ft., ft.	2,250
Max. Range, mi.	1,700
Endurance, 65% hp., hrs.	7.25
Svc. Clng., ft.	27,500
3-Eng. Svc. Clng., ft.	22,500
Aspect Ratio	9
Wing Loading, lbs.-sq. ft.	40.1
Pw. Loading, lbs.-hp.	10.6
Span, ft.	55
Length, ft.	41.55
Height, ft.	16 4
Fuselage Width, ins.	74
Fuselage Height, ins.	84
Wheel Base, ft.	12.7
Tread, ft.	18.3

SUPER COMMANDER

(Continued from page 27)

hp. hr. at power settings for 65% of rated power and under, as compared to .51 lbs. per hp. hr. for the unsupercharged GO-480.

The GSO-480 uses the single-barrel, updraft Stromberg PS-7BDE carburetor, which provides a closed fuel system from the engine-driven pump to the carburetor discharge nozzle, metering fuel through a fixed jet in proportion to the air flow to the engine, the discharge nozzle being downstream

from the throttle valve to prevent carburetor icing. It assures positive fuel delivery regardless of attitude or altitude and maintains proper fuel-air ratios regardless of engine speed, propeller load or throttle lever position, and is equipped with an automatic mixture control.

In the 680-Super, the engine is provided a carburetor heater instead of the customary alternate air source for unsupercharged engines. This heater assures a heat rise of 135 degrees instead of 100 degrees as required by CAA. The 680-Super engine installation also provides firewall shut-off for engine oil and hydraulic fluid as an added fire safety feature.

Propellers are 3-blade, all-metal, constant-speed, full-feathering Hartzell Model 82x20-2C-9333C, having longer and higher-activity blades than on the 560-A Commander but involving a negligible weight increase. The propeller gear ratio is 77 to 120, slowing the prop down to 2,180 rpm. at take-off engine speed of 3,400 rpm. and down to 1,600 rpm. for an engine speed of 2,500 rpm., as an example.

The 680-Super has several standard features which are optional on the 560-A. These include outboard fuel cells, larger wheels and Goodyear 3-spot brakes, and built-in Scott oxygen system with cabin console. Available for it and other Aero Commander models, for factory installation, is a very complete 95-lb. Goodrich de-icer system of boots for wings and empennage and Icex propeller anti-icing boots. Service and wind-tunnel tests have proved this new high-pressure boot system superior to older boot systems. ★ ★ ★

Super Commander Standard Equipment

(Continued from page 25)

speed 50-amp. generators, 2 engine-driven and 2 auxiliary electric fuel pumps, dual vacuum system, long-range fuel system with 223-gal. usable capacity, dual electric firewall fluid shut-offs, electric primers, 5-pl. seating, choice of 4 colorful interiors, Scott console oxygen system, powered nose-wheel steering, engine-driven hydraulic pump, hydraulic hand pump and emergency brake system, outside air temperature gauge, flap position indicator, dual landing gear position indicator systems, stall warning indicator, vacuum warning lights, Grimes eyebrow instrument lights plus auxiliary instrument lighting system, flashing position lights, 2 landing lights in nose, map light, dome light, 25,000-BTU Janitrol heating system with thermostatic control, blower ventilating system for ground operation, cabin ventilating system with 14 fresh air outlets, control lock, emergency kit, tow bar, 3-shelf radio rack in aft fuselage.

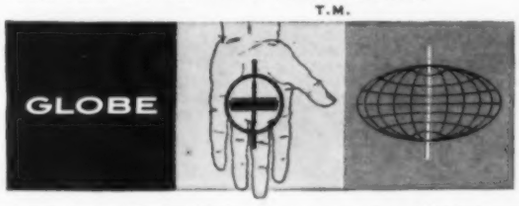
PILOT REPORTS ON GLOBE GYRO-STABILIZER*

"...I like the way it works... without jerks . . . in particular the way you can read your maps or relax . . . have nothing but praise for the unit."

Low in price, the Globe Gyro-Stabilizer makes flying easier, safer. Read maps or relax . . . twist a knob for controlled, stable turns—Globe handles the rudder smoothly, prevents spirals. Write for "Pilot Reports," letters from pilots who use it. Demonstration arranged on request. Globe Industries Inc., 1784 Stanley Avenue, Dayton 4, Ohio.

**best value in automatic rudder control*

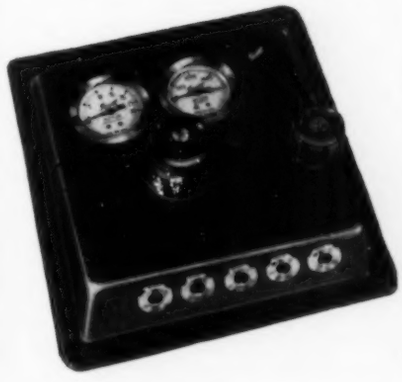
T.M.



COPR. 1956 GLOBE INDUSTRIES, INC.

Here's why the Scott OXYGEN CONSOLE is standard on the new

Aero Commander 680



★ **COMPLETE.** Fixed oxygen system supplies as many as five persons — more with dual manifold plugs.

★ **SIMPLE TO USE.** Set at cruising altitude and plug in masks. Each outlet is an ON-OFF valve.

★ **LIGHT WEIGHT AND COMPACT.** Measures 7½" x 8" x 1½". Weighs only three pounds. Fits anywhere in the cabin of the airplane. Does not require valuable instrument panel space.

If you do not have Scott Oxygen Console equipment, write today for complete information. Please specify your aircraft.

Scott — SINCE 1932 — FOR SAFETY—OUR SERVICE

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235 Erie Street, Lancaster, N. Y.
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Remmert-Werner

Inc. of **St. Louis** Lambert Field

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Specialists in

DC-3

LODESTAR **TWIN BEECH**

Maintenance Conversion Overhaul

Deicers Heating systems Rewiring
Interiors Picture windows Painting
Custom radio and instrument panels
Insulation, heat and sound
Autopilots Specialties
Executive radio
A.R.C. BENDIX COLLINS SPERRY
NARCO WILCOX LEAR

Engines
R985 R1340 R1820
R1830 Super-92 R2000

RADAR

Bendix C-band
R.C.A. X-band

DC-3 Heating systems — 400,000 BTU
3 way — automatic — ground
Janitrol — Hot air — Stewart-Warner

DC-3 Blow out proof oil coolers, automatic surge-proof thermostats

DC-3 Outer wing tanks

DC-3 Geared rudder tabs — for 1350 HP

DC-3 Landing gear doors

DC-3 Retract tail wheel

DC-3 Short tail pipes

DC-3 Dual hydraulic system

DC-3 Airstairs — electrolift

DC-3 One piece birdproof windshields

DC-3 Picture windows

DC-3 Shutoff valves

DC-3 Fire detectors and extinguishers

DC-3 Fuel flow meters

DC-3 Brakes
Hayes-Goodrich, Goodyear, Bendix

DC-3 Deicers

DC-3 Spare surfaces, wings, controls

DC-3 Spare parts for airframe, engines

DC-3 Propellers, toothpick, paddle

DC-3 Engines — ALL
R1820-56, -72, -202
R1830-75, -92, -94
R2000
SUPER-92

C-47s Available

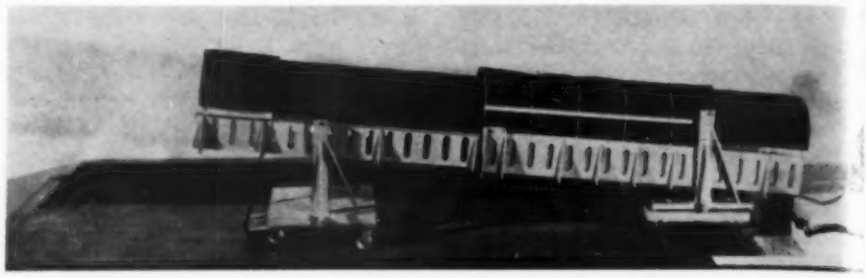
1086 to 6402 hours total, 8000 hr. OH, NTSO engines, new ship guarantee.

Super-92 DC-3

each month

your choice of engines

Bendix or Collins radio, new ship guarantee, complete 8000 hour overhaul, beautiful custom interior, big windows, 200 mph.



AEROBRIDGE TELESCOPING AND MOTORIZED CARGO LOADING RAMP is being produced for the U. S. Air Force from a design perfected by Lockheed Air Terminal, which has subcontracted its manufacture to Universal Fabricating Co. It is 64 ft. long but can telescope to a length of 84 ft. Two hoists support it on movable dollies at either end, the ends being adjustable between heights of 4 and 10 ft. It is self-propelled. Picture shows a model. —(Lockheed Photo.)

Questions and Answers for Operators

Are Airport Managers Losing Their Identity With Users?

Dear Tex:

Ever since I saw you momentarily in Atlanta last month, I've wanted to write you about some of the things which are bothering me. You may not recognize yourself from the salutation above but you tell me you've been down there for awhile so I guess you're entitled to be Texed. This is a half-way personal letter, anyway. I am doing all right. The little old business requires three airplanes now, one of them a DC-3. They keep pretty busy. I'm dictating this in the comfort of same about an hour and a half out of Miami.

Something has happened to airports in the last five or six years and I don't like it at all. Being a user of airports I have a right not to like some of the things I am going to tell about. Being a user of more than one airport, that is by traveling to so many in a year's time, I am able to sample the service and product widely enough to compare one with the other and both with the past. Let me make it clear that I am not talking about the service operators but about the airports themselves.

No fault to find with the small-town fields. I realize that economics are a controlling force there, but generally they are improving; the fields at the middle-sized towns with some exceptions are fairly satisfying; where I find the situation disquieting is in the cities of 300,000 population and up, with some exceptions, of course. There are exceptions to everything.

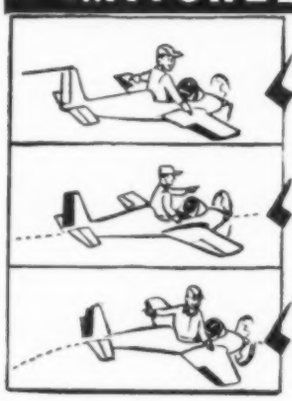
Twelve or thirteen years ago when the only thing I had to fly was that little red job you helped me tie down the day I first met you, I knew every airport manager in every town I flew into—that is, provided the town had an airport manager. Now I know only a handful, comparatively speaking. Where are they? Where is the personal touch that so many of them gave to their airports? Some have retired, I know, and some have passed away. But it seems to me the modern city airport manager, bigger city that is, has been remoted from the user to a dangerous point. I don't care whether they have had their titles lifted into the fancy brackets, it seems to me that deterioration sets in when intimate touch is lost with the user.

The other day I tested out the above. I asked for the airport manager. I was told, "The director's office is not in the terminal."

"Doesn't he have an office here?"

"Oh yes. But he spends a great part

MITCHELL'S AIRBOY CO-PILOT



Controls roll by a pickup in the artificial horizon

Controls direction by sensing a course change in the directional gyro

Turns in degrees made by your setting the D. G. or makes continuous turns with the manual turn lever

When you consider purchasing an Automatic Pilot be sure to get the best and most economical — the MITCHELL'S "AIRBOY CO-PILOT."

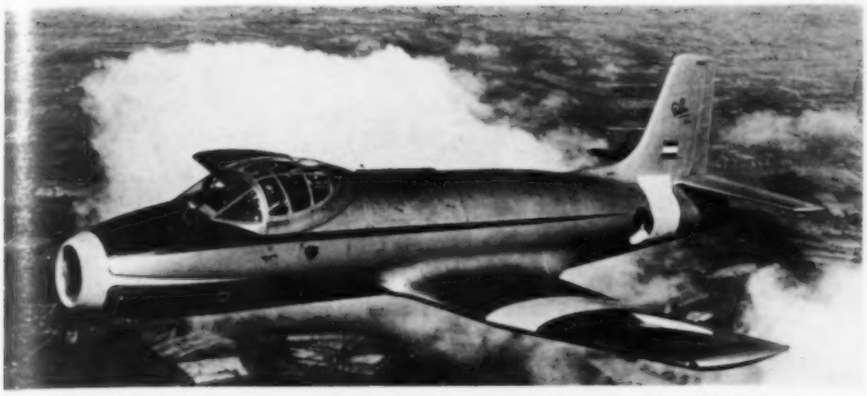
Regardless of its low price of $1,450 it will out perform others.

The "AIRBOY" can do a better job at holding the ship level and on course than a pilot can — so smoothly it is unbelievable. Hundreds of satisfied owners have found the "AIRBOY" indispensable in cross country flying.

Now CAA approved for Apaches, Navions and Bonanzas 35's and 50's. More approvals pending.

See your dealer or write to:

MITCHELL INDUSTRIES, INC.
Municipal Airport Mineral Wells, Texas



FOKKER S-14 TWO-PLACE JET TRAINING DEMONSTRATIONS have been conducted at U. S. Air Force and Navy bases by Fairchild Aircraft, which holds manufacturing and sales rights. The 450-mph. S-14 is powered by a Rolls Royce Derwent gas turbine rated at 3,470 lbs. thrust. It takes off over a 50-ft. obstacle in 3,300 ft., climbs 3,000 fpm., and has a 600-mile range at 25,000 ft. without auxiliary fuel.
—(Fairchild Aircraft Photo.)

of his time in the Hall."

So I asked: "Well, may I talk to the man who runs the airport down here."

"Would you like to talk to the business manager, the superintendent of maintenance or the executive assistant?"

The point I am trying to make is that the man who runs the business seems to be getting farther and farther away from the user. The user is the man who flies the airlines or bases his business or executive aircraft on the field in the town in which he lives, or the man who uses non-airline air transportation to reach the community.

Surely, the airports are much busier places than they were years ago. That isn't an argument against intimate operations of an airport. It seems to me to be instead an unanswerable argument for it. Without a close perspective of the day-to-day and hour-by-hour operations of an airport, can a manager judge honestly the services he's giving the public and the needs of the same public? Sure I know all about delegation of authority and so on. I know, too, how many hours there are in a day.

I've no argument against putting good business minds in charge of airports. They are necessary in an expanding airport business. But somehow I get the impression that the cold business measurement of airports without sound airport management experience can lead to inequities in providing all the things an airport needs to serve all the people who use it. If airport management loses touch with the user, who is there left to fight for him?

Every time I see or hear or read about an instance of lack of facilities for the general aviation user, I wonder how much of a fight the airport manager puts up for the little guy. As a traveler, every time I find inadequate hangar, shop or aircraft parking for the itinerant user, I pause to wonder if there is anyone in the management function who has tried to interpret the needs of that element of aviation to local public authorities and to fight for his views. Every time I go into an airport and spend my money, I buy a right to expect adequate return.

The airport manager or director, I should say, in my city is expected to retire shortly. We people who are the users of the airport along with the airline customers and the general public are certainly going to raise our voices strongly to get the kind of manager who can take an aggressive and impartial view of all the needs of all the users. We want a man of

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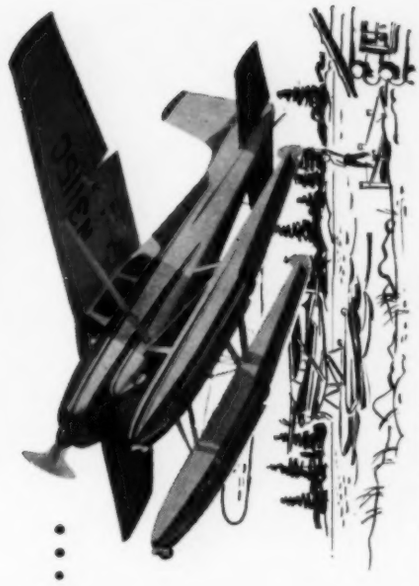

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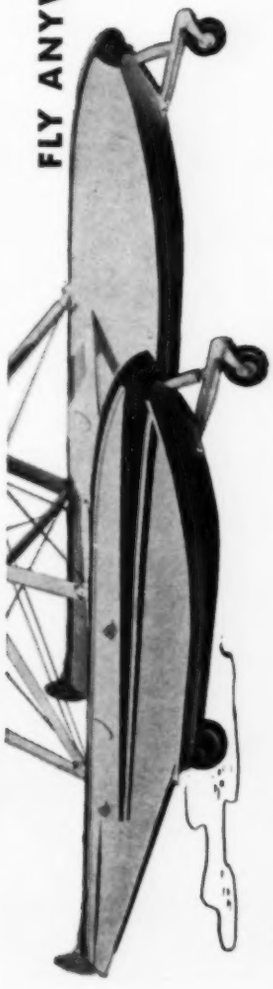

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training, executive know-how and still one who can find the time to link himself closely with field operations. His age doesn't matter. There are young ones and older ones we remember who would fit, impartial, aggressive experienced men.

Now, don't send me a bunch of applications from your friends because we will have a fight on our hands to get in our say, and even then it would probably be a little fatal for us to put forward a name or names, but when and if the time comes, we are going to try to have a say about the selection. And if the man selected is the right one, we are going to give him all the backing we can.

See you soon,

Bud.

ANSWER: Quit that, will you? Every spring we get a bad case of occupational nostalgia and wonder why we ever quit running airports for a living. We read Douglas Wolf's "6th Annual Report 1955" for the Broome County Airport at Binghamton, N. Y., a most businesslike report that still indicates close and intimate touch with the airport and its users and we get the urge to go look for an airport.

Every time someone drops into the office and tells us about the good service he got at some airport, like at Charlottesville or Lynchburg, Va., or the good meals Indiana Caterers are providing at Evansville, Indiana, or good food at Tampa International Airport, we itch to try them out.

We won't send you any applications. We know you people are going to have a tough fight on your hands. We know, too, just the kind of men of adequate training in airport management, mature judgment and aggressive spirit you feel your situation requires. Two of them are men who fit that experience, judgment and spirit requirement to a "T" and want to make a change. We know there must be more but they haven't told us they want to make a change.

We have just read that letter again,

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HELIPORT WINDICATOR is a small tetrahedron manufactured by Westinghouse and distributed by Van Dusen Aircraft Supplies. This one is pictured at LaGuardia Field in New York, alongside the landing mat used by helicopters of New York Airways.
—(Van Dusen Photo.)

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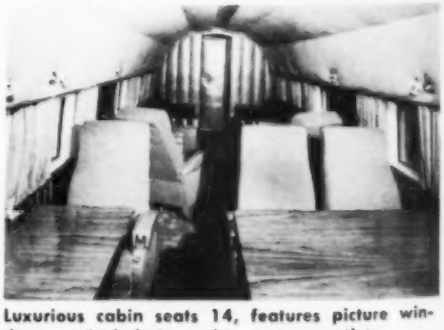

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PIPER SUPER CUB DUSTERS are operating in New Zealand. One of a fleet of PA-18-A's operated by Airwork (NZ) Ltd., is shown spreading fertilizer as a top dressing over pasture land. Lower photo shows a Jeep-mounted loading device which speeds handling on the ground. —(Photos by D. J. McKay.)

NEWEST AIRLINER AT DOUGLAS AIRCRAFT COMPANY is the long-range DC-7C, Seven Seas, first units of which will be delivered in mid-1956 following CAA certification. This is the test aircraft which has been seen on the West Coast in a series of test flights. Two other DC-7C's are also to be engaged in the tests. The Seven Seas is an enlarged, over-water version of the DC-7. More than 100 DC-7C's have been ordered by Alitalia, Braniff, BOAC, CMA, KLM, Northwest, Pan American, Panair do Brasil, Sabena Belgian, Scandinavian, Swissair and TAI (French) airlines. —(Douglas Photo.)

for the third time. Each reading gives force and impetus to the lesson to be learned from it. The users of airports have a stake in the airports they use whether as a base of operations or a point serving them as they become itinerants or transients, both mighty poor terms of description. Many people get the idea that operators are the users. They are, but as against the owners and operators of business and executive aircraft, the operators are small in number at any individual airport.

We know of a great many places where the operator is fighting to get the opportunity to serve the users or to keep what facilities he has or to get expanded facilities for which he is willing to pay, while the ultimate user stands by and doesn't put his

NEW SERVICE FOR FLIERS between the United States and Mexico has been established at Rio Grande Valley International Airport, Brownsville, Texas. A special service, Servicio Aviacion, S. A., with government sanction, passes fliers through the port of entry and takes care of all arrangements and papers without charge. Leaders who took part in a conference at Brownsville are pictured. Left to right are Cliff Green, Texas Aeronautics Commission director; Maynard Penick, vice president of All-Texas Air Tours; Glen Gilbert, director of the International Aviation Training Center at Mexico City; and Joe E. Jones, Texas Aerial Applicators president.

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hand to the struggle. The transient corporate and business user represents an impressive weight and wealth in the world of economics we live in today, both locally and away from home base. If these people find air transportation is useful to them, they have a voice the sensitive political ear will pick up. They should make themselves heard as often as possible, without waiting until they face a crisis.

Visit With Bennett Griffin

NEXT time you're at Washington National Airport, spare a few minutes and go upstairs in the terminal for a little visit with Bennett Griffin, an airport manager who still keeps an intimate touch with the airport user. His is about the busiest airport you can find these days. But the welcome mat is still out for everybody, big or little. Makes you feel good to have a look from the inside. There's also a tonic in receiving the courteous and very capable handling which characterizes the tower operations there. Our impression is that courtesy is contagious and we have many times observed the spread of friendly atmosphere from the Washington National tower through its messages to and responses from airliners and business planes in the vicinity.

JUST AMONG OURSELVES

(Continued from page 50)

citizens and inspired the settlement.

The implications of this case and the 105-decibel count are far-reaching. It is only the beginning because the noises of the jet age are new noises. People have gotten used to propeller driven aircraft, diesel trucks and clattering trains. The scream of the jet is a long way from acceptance or toleration.

Recently an airline executive stated that they were ordering jet airplanes that hadn't been built yet with money they didn't have to operate on airports that couldn't handle them. We'd like to add with new noises that people on the ground will resist.

The Southwest Airmotive case points up the seriousness of the problem.★★★

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